AN ARGUS SPECIALIST PUBLICATION

HOME Computing WEEKLY

No. 90
Nov 27–Dec 3, 1984
45p

Broad St–film of the game

Give my Regards to Broad Street is the title of Paul McCartney's new film — and also the new game for the Commodore 64 and Atari by Mind Games.

Paul McCartney's film will be premiered in Liverpool on Wednesday November 28 and goes on general release in the New Year; the game version is scheduled to coincide with this.

Give my Regards to Broad Street — the film — is described as "a dramatic musical

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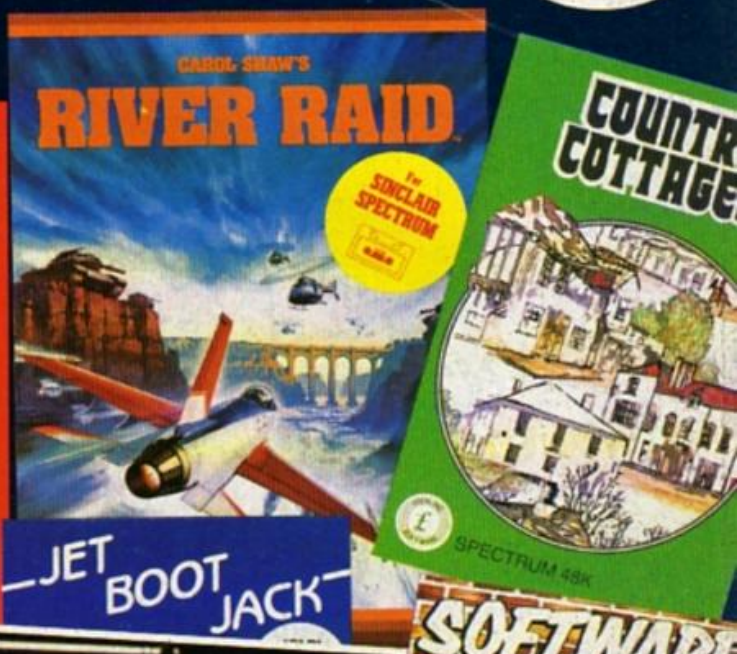
New Oric computer

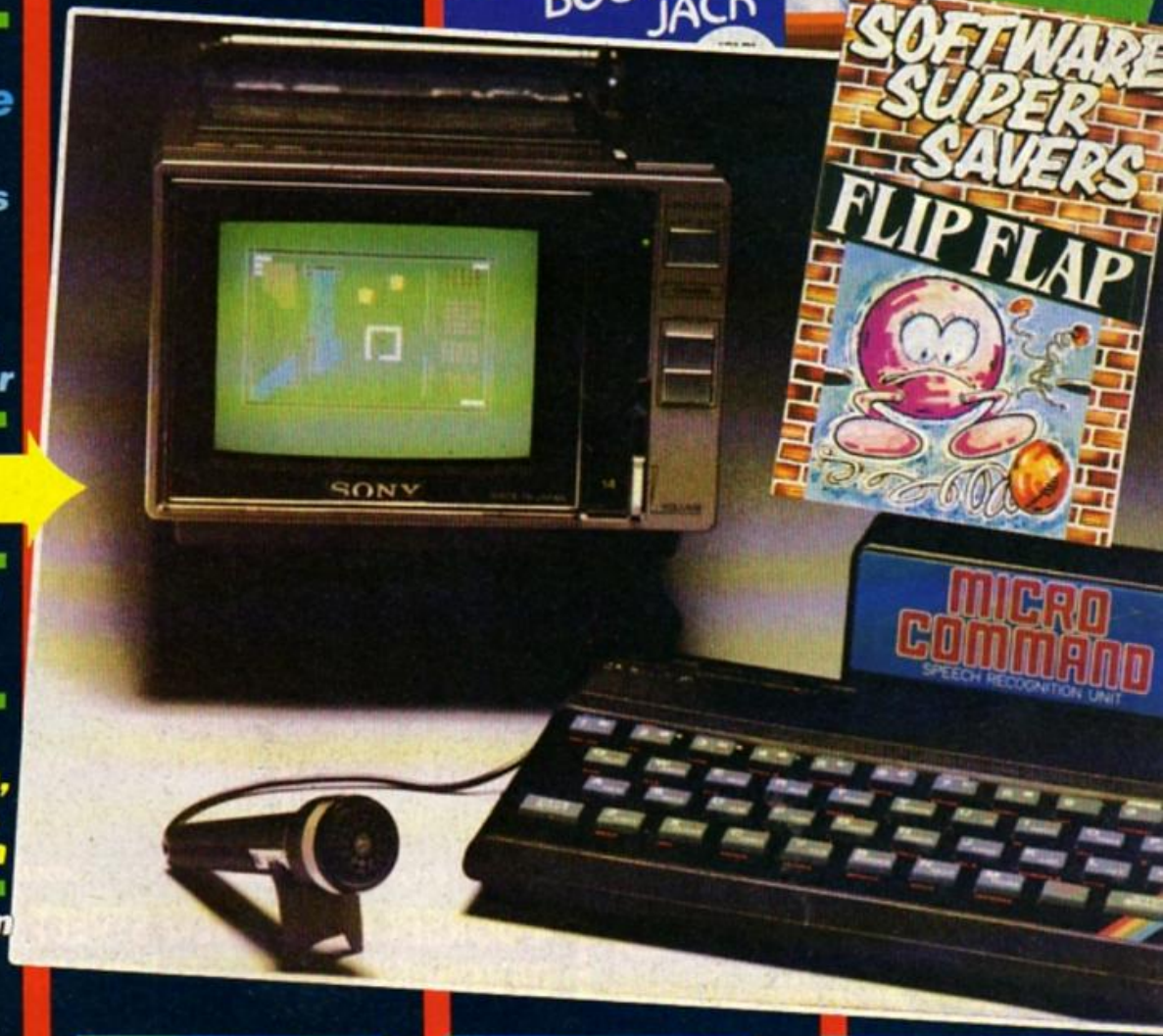
Oric will be making a bid for a larger share of the UK home computer market with the launch of its new model in January 1985.

Provisionally called the IQ 164, the new computer will feature 64K of RAM, as well as an extended 40K BASIC and restyled black and red casing.

The new model will first be launched in France, where Oric is reported to have 53 per cent of the market. Its UK share of the market stands at 1-2 per cent, and the company hopes to

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Bumper treat for Commodore 64 owners

- Guide to add-ons
- How to create special effects
- Send your friends Christmas cards–by computer

Review Micro Command talks back

Alien competition 100 games must be won!

Reviews for: CBM 64, Spectrum, Amstrad CPC464, BBC, ZX81, Dragon

Programs to type in for Oric/Atmos, VIC-20, Amstrad CPC464

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MODEMS:

Interlekt Auto answer (Portman)	199.95
Jaguar Communications (Minimo 300)	99.00

+ much more — write or 'phone for all your hardware enquiries.

3 THE SUPPORT IS HERE

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MAGAZINES:

99/4A (Parco Magazine)	2.00
HOME COMPUTER Magazine	3.75

+ many more publications.

4 THE FUTURE IS HERE

The TI-99/4A is a well established and proven machine. Even so, it has long enjoyed features that other micros are still struggling to emulate, yet there is also room for new growth.

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HOME COMPUTING WEEKLY
BRITAIN'S BRIGHTEST



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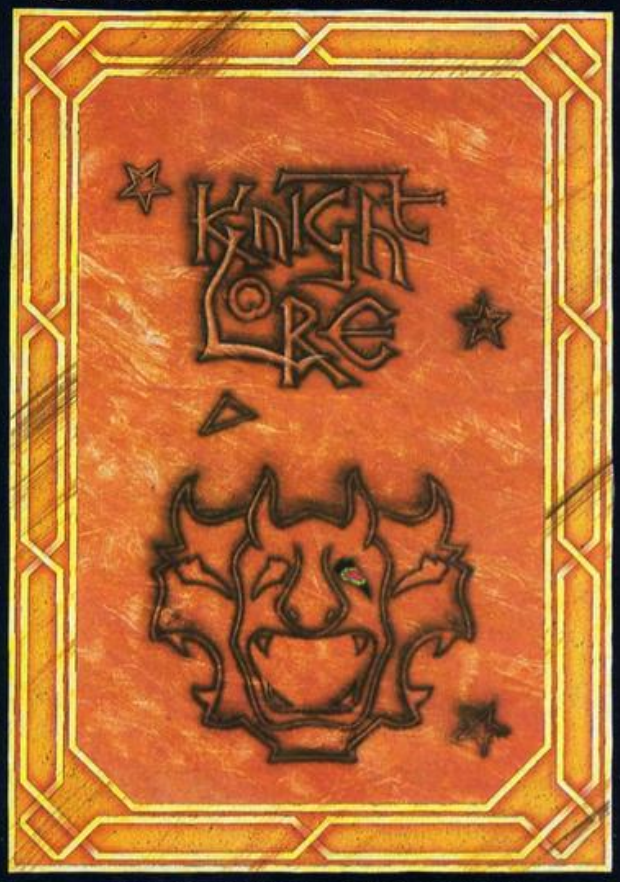
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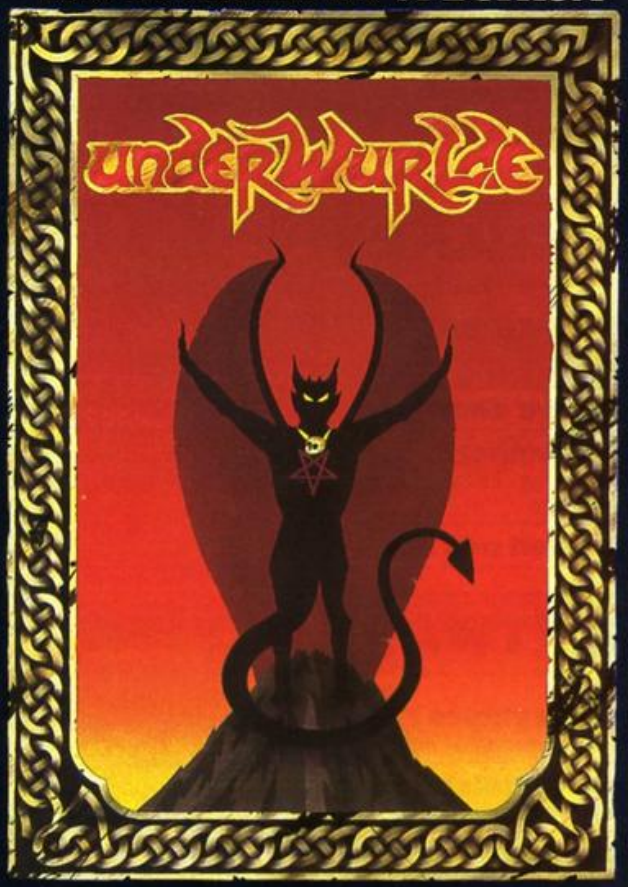
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ULTIMATE
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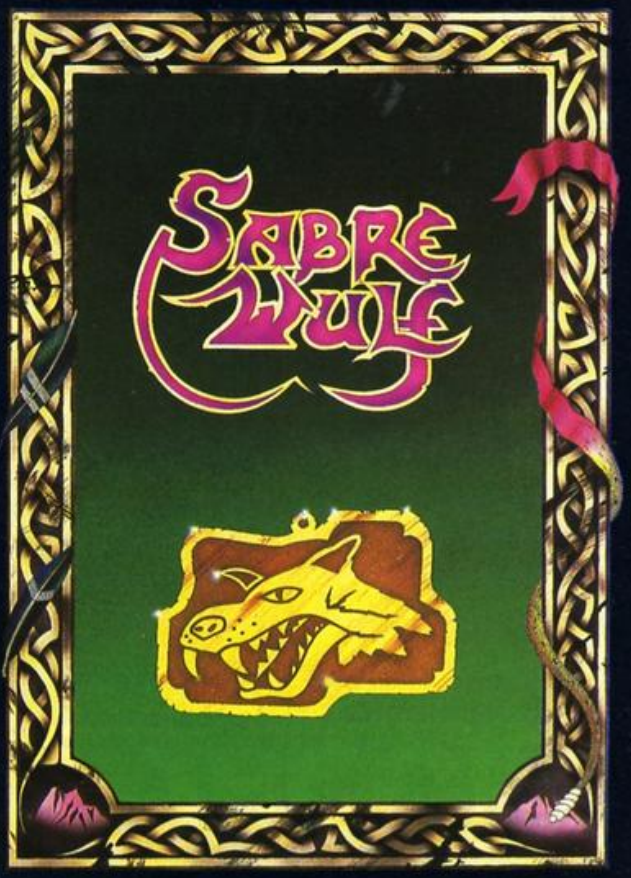
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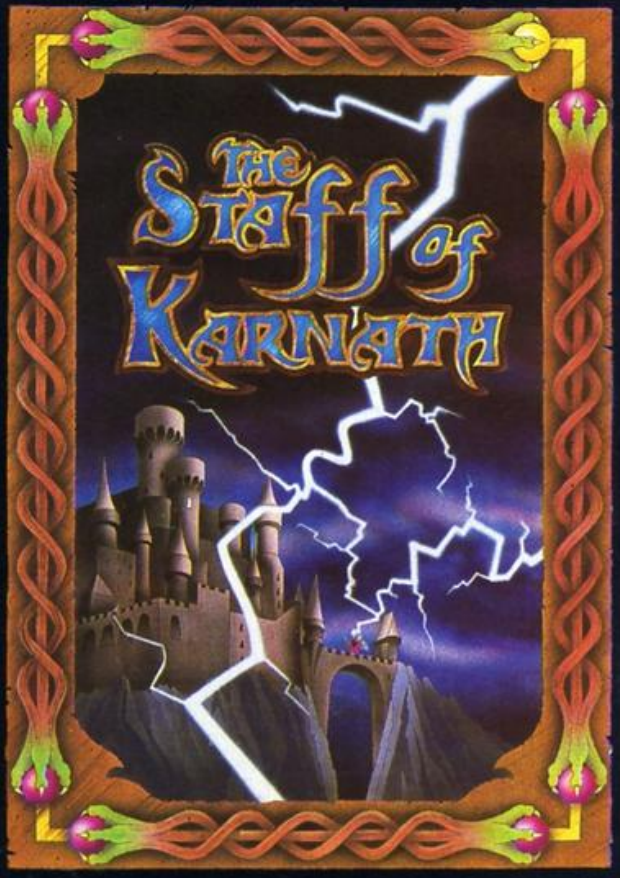
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BBC MODEL B 1·2 OS
48K SINCLAIR ZX SPECTRUM



COMMODORE 64



"KNIGHTLORE", "UNDERWURLDE", "SABRE WULF", and "STAFF OF KARNATH" recommended retail price £9.95 inc VAT. Available from W.H.SMITH, BOOTS, J.MENZIES, WOOLWORTHS and all good software retail outlets. Also available from ULTIMATE PLAY THE GAME, The Green,

Broad St — game of the film

From front page

fantasy." It's based in London and tells the story of 24 hours in the life of an international superstar. The master tapes of Paul's latest album have been stolen and must be recovered.

A soundtrack album has been released and went to number one in the charts in a week, beating Boy George into second place. Yesterday, The Long and Winding Road and Eleanor Rigby have all been re-recorded, and four new songs have been composed.

The film stars Paul and Linda McCartney, Ringo Star, Tracey Ullman and Barbara Bach, as well as Sir Ralph Richardson in a cameo role.

Twentieth Century Fox has invested $8m and the film is directed by Peter Webb, who has been involved in TV commercials and directed the Hovis ad.

Give my Regards to Broad Street — the game — is based around the film, and design, graphics and coding have all been achieved by Liverpudlians.

Mind Games, part of the Argus Press Software group, claims that the game is fast, furious and needs a strategic approach. You must relate to people and their behaviour, and graphics are said to be state of the art.

The final game will be tried and tested by Paul McCartney's family and Paul is contributing a good deal to the development of the game, which will go on sale at £6.95.

Argus Press Software, No.1 Golden Square, London W1R 3AB



Paul McCartney — star of stage and screen

New Oric computer

From front page

increase that percentage with the launch of the IQ 164.

Oric's new model will be compatible with existing Oric and Atmos software. It uses the same 6502 processor and the new BASIC is said to give much better graphics.

The IQ 164 has a slot for ROM cartridges and two joystick ports. The keyboard has a function key which, when held down, allows single key entry of BASIC keywords. Although these are predefined, they may be changed by the user.

A 16-bit version is scheduled: this could be accomplished by a simple change of chip. Also to come is a Z80 second processor with CP/M offered at the same time. This would be made available for the existing two computers as well.

The retail price has not yet been determined, but the IQ 164 will probably cost between £200-£300.

The new model will be marketed by Tansoft, owned by Oric's managing director Barry Muncaster and techical director Paul Johnson.

Bruce Everiss, formerly of Imagine, is now managing director of Tansoft. He said he would even consider marketing an MSX-compatible Oric if the demand were there.

Oric, Coworth Park, London Rd, Ascot, Berks SL5 7SE

Bring back the sun

Aztec — Hunt for the Sun God is the title of a new adventure game released by Hill MacGibbon. Promoted as one of its range of "Games to stretch the mind," the company claims that it's a game of imagination and logic suitable for all the family.

You can wander at will through a South American landscape of forests, cities and volcanic mountains. There are more than 3,000 scenes, each with colourful 3D graphics, as well as 360 degree scrolling so that you can look all around you.

The challenge of Aztec is to interpret a strange, disturbing dream. You must restore the lost sun to your world.

Included in the purchase price of £7.95 is a full-colour poster with a spell-breaker, instruction booklet and keyboard overlay. Available on the Spectrum, Aztec is Microdrive-compatible.

Two further releases from Hill MacGibbon are King Arthur's Quest and Gun Dogs. The former's an adventure, while Gun Dogs is an arcade game. King Arthur's Quest features 3,200-plus scenes and your quest is to free the realm of an icy mist issued by an ice-dragon. All the usual features — spells, unicorns, dragons — are included.

In Gun Dogs you must shoot down flying game and guide your retriever across the landscape to fetch the bird. Mind out, though — there are numerous obstacles and dangers to avoid.

Hill MacGibbon, 92 Fleet St, London EC4 1YD

Bunch of five

A bunch of five new programs from Scisoft — Science, French, German, Geography and Maths Plus are all available for the Spectrum and are for the 9-14 years age range.

At £6.95 they are supplied with documentation and ideas for worksheets. Scisoft intends the series to be used at home as well as in schools.

Commodore 64 titles are now available from Scisoft, and the range kicks off with Intermade Maths I and II, Computer Studies, Physics and Chemistry. This series is aimed at 'O' Level students.

Scisoft, 5 Minster Gdns, Newthorpe, Eastwood, Notts NG16 2AT

Look it up

Currah has now launched a dictionary to help you use your Currah Microspeech. It costs £3.50 and should help if you have problems with allophones. The dictionary contains over 2000 commonly used words, and careful reference to similar words means that you can extend this scope.

Currah Computer Components, Hollymount, Wooler Rd, Harlepool, Cleveland

Reach for the sky

New from Skywave: for the Amstrad CPC464: an expandable RS232 interface. Features include choice of eight baud rates; separate transmit and receive baud rates; sideways ROM can be fitted, as can an expansion card.

For the price of £59 (plus VAT, plus £3 p&p), you get the interface, a cassette containing driver software and an extensive manual.

Skyware states that it is currently developing a range of sideways ROMs for the Amstrad CPC464, including a version of Multi-FORTH 83.

Skywave, 73 Curzon Rd, Boscombe, Bournemouth BH1 4PW

BT Silver range

Firebird is British Telecom's software arm and 20 games have been launched in the Silver range, at £2.50. There's two for the VIC-20, four for the BBC, nine for the Spectrum and five for the Commodore.

Firebird games all depict a screen shot on the front cover, which means that what you see is what you get.

Firebird Gold, a series of titles which will cost from £5 -£8, will follow the Silver range. "Not a range of programs but individual titles of sheer excellence," is how Firebird announces the games, education and utilities in this bracket.

Firebird Software, Wellington Hse, Upper St Martin's Lane, London WC2H 9DL

Murky depths

Savage Pond is the latest release from Argus Press Software. From Starcade, it's a conversion for the BBC, and takes you to the world of the tadpole.

Poisonous hydra, dragon-fly offspring, and radioactive waste combine to make you sick. Weapons are of no avail — you need to bring all your courage and skill to bear to get yourself out of this one.

Argus Press Software, No. 1 Golden Sq, London W1R 3AB

Amstrad add-on

dk'tronics is expanding its' range of peripherals with the addition of an Amstrad speech synthesizer and stereo amplifier.

At £39.95, it uses the Amstrad stereo output on the back of the computer — the interface has a built-in stereo amplifier, which enhances the sound.

dk'tronics, Unit 6, Shire Hill Ind Est, Saffron Walden, Essex CB11 3AQ

Voice over

dk'tronics has announced the release of a new Spectrum speech synthesizer. At £24.95 it is reported to have an almost infinite vocabulary. You enter everything you wish to hear in normal English, and you don't need to learn special codes or characters.

The synthesizer is supplied with text to speech converter and it uses the SLO/256 speech chip. The Spectrum can carry on with its normal running while the speech chip is talking.

dk'tronics, Unit 6, Shire Hill Ind Est, Saffron Walden, Essex CG11 3AQ



dk'tronics new Spectrum speech synthesizer

Eccentric adventure

Peter Cooke, author of Urban Upstart, has written Upper Gumtree, his latest graphic adventure. Richard Shepherd Software is releasing it for the Commodore 64, and, according to pre-release publicity, "combines the standard 'get yourself out of this' with an element of detective work, which must be tempered by a taste for the unlikely and a passion for the ridiculous."

Each month, Richard Shepherd Software will be giving certificates of merit to the 10 players who have completed the adventure in the shortest time. Amstrad, Spectrum and MSX versions are scheduled to follow shortly.

Richard Shepherd Software, Elm Hse, 23-25 Elmshott Lane, Slough, Berks

Spy city

Agent USA is an arcade/strategy game from Longman Software. The story goes: "Somewhere in a US city the evil FuzzBomb lurks, infecting every innocent citizen who touches it and turning them into FuzzBodies. You are Agent USA. You alone can save the country from the rapidly advancing menace of the Fuzz."

You need to have all your wits about you, as well as razor-sharp reactions. Agent USA is written by Tom Snyder, American games designer. "The funkiest soundtrack around" is how Longmans describes the backing music.

Available on disc or cassette for the Commodore 64, it costs £14.95 and £7.95 respectively.

Longman Software, Longman Hse, Burnt Mill, Harlow, Essex CM20 2JE

Learn at home

Two new educational programs from Rose Software: Physics 'O' Level and Highway Code. Both run on the Spectrum and cost £6.95.

Physics 'O' Level is four programs which cover in depth the topics of light and heat, while Highway Code is a quiz which should help you learn all the basics required to pass your driving test or schools' cycling proficiency test.

Rose Software, 148 Widney Lane, Solihull, W Midlands B91 3LH



New Brother M-1009 dot matrix printer

Print out

STC Electronic Services has introduced the new Brother M-1009 dot matrix printer for use with your home computer.

At under £200, it provides a range of features which include long-life print head, 50 cps bidirectional printing for super- or sub-scripts and graphics, as well as 96 ASCII characters with graphic and international characters.

Centronics interface is built in, while an RS232 is an available option. Lightweight, at 3 kg, it measures 333 x 191 x 70 mm.

STC Electronic Services, 190 Strand, London WC2R 1DU

Time of day

Technomatic has released its Time Warp real time clock calendar, for the BBC. It costs

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Through the corners, up the hills, into the ruts and down the straights you manoeuvre for position and try to beat the clock.
Stay ahead if you can. But whatever you do, stay on course.
Stay ahead if you can. But whatever you do, stay on the course.
If you don't, one of two things will happen.
You'll slow down and lose valuable seconds getting back into the race. Or worse, you'll end up on the seat of your pants.
Who says computers don't like to get dirty?

Your agents risked their lives to find the enemy's secret headquarters.
Now you're risking yours to destroy it.
And they know you're coming.
Time is short, so you'll have to fly. But fly too fast, and you'll squander your precious fuel supply.
Needless to say, they don't issue parachutes on missions like this.
As you soar over hundreds of miles of distinctly unfriendly territory, the action is thick, fast and frighteningly three-dimensional.
Fighter aircraft. Surface-to-air missiles. Helicopter gunships.
The attacks come from every direction.
Even from behind.

Edison, the kinetic android, leads a frustrating life.
All he really wants to do is build his circuit boards and go with the flow. But things keep getting in the way.
Ohms — a negative influence — bug him regularly. They're harmless, but only from a distance.
Flash, the lightening bolt, disconnects everything in his path. Which can be frustrating after a hard day on the circuit.
And the cunning Killerwatt is out to fry poor Edison's brains.
But our hero simply solders on.
Juice! is the ultimate current event. You'll get a charge out of it. And a few jolts, too!

HOW TO ORDER

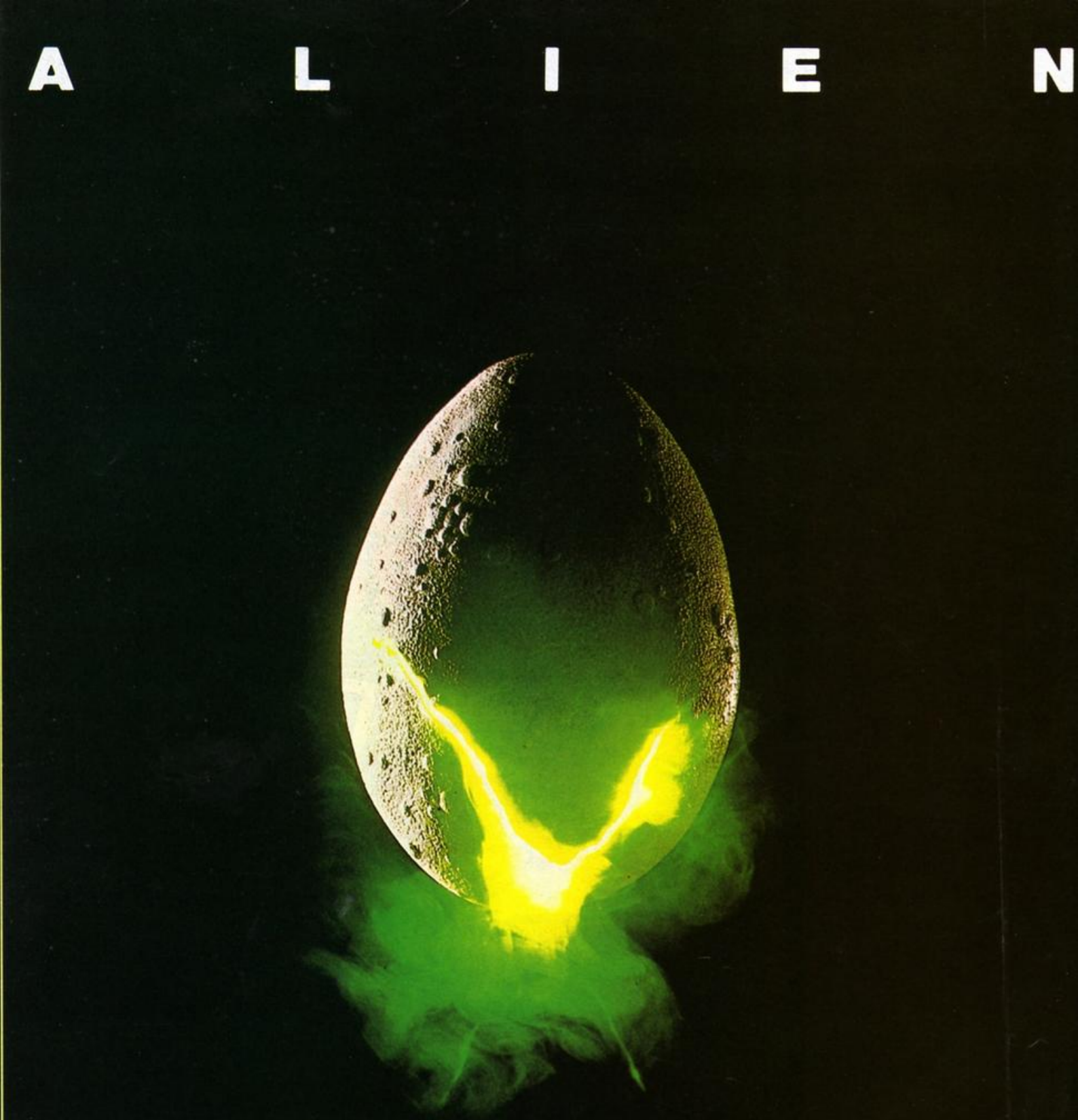
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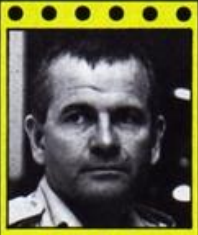
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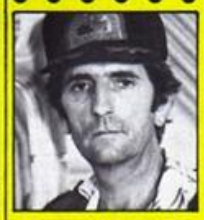
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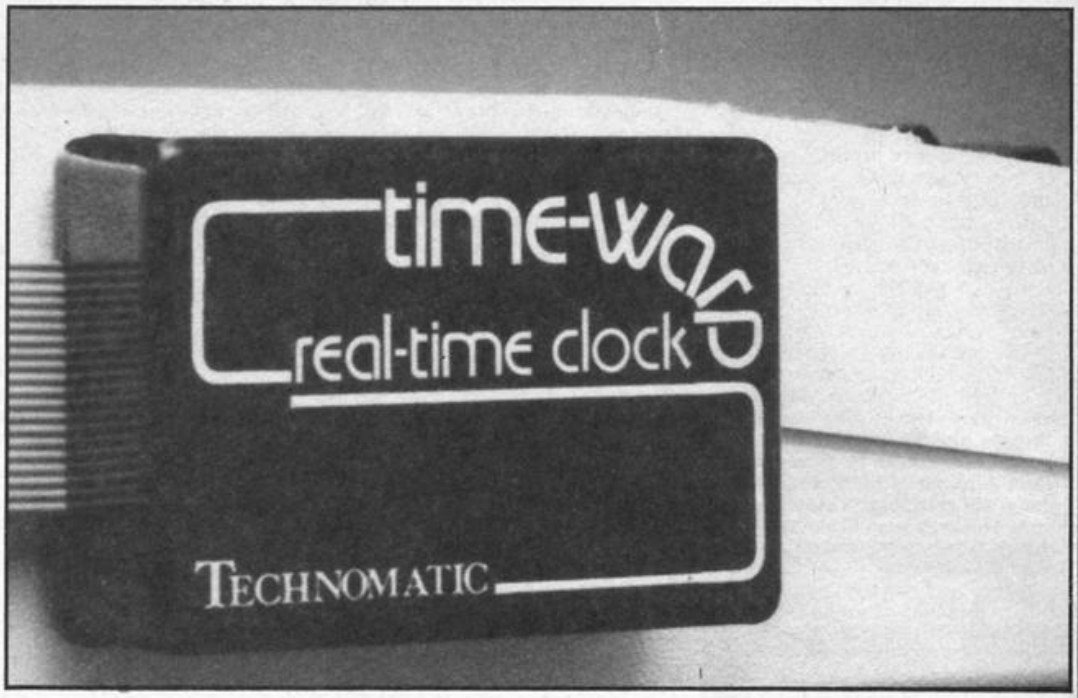
From page 6

£29 plus VAT, and is provided with a one-year warranty.

The clock continues to give the time and date even when the computer is switched off and it can be installed quite easily. It's a small self-contained unit.

Suggested uses include continuous display, electronic diary with auto-alarm, automatic document dating and scientific control.

Technomatic, 17 Burnley Rd, London NW10 1ED



Real-time clock from Technomatic

Touch and go

Cumana, a company which is known for its floppy disc drives, has now launched a graphic plotting aid for the BBC. It's called the CM504 and it's a pressure sensitive touch pad.

Cumana states that it is designed as a mouse substitute or smart keyboard supplement and is also ideal as a graphic input device.

Costing £69.95, the CM504 is supplied together with connecting cables, demonstration software and instruction booklet.

The CM504 features a pen-up/pen-down indicator, while the co-ordinate conversion performance is 80 samples per second at 9600 baud.

The Touch Pad is claimed to have an active area of 60 mm square, and resolution if 1000 x 1000.

Cumana, Pines Trading Est, Broad St, Guildford, Surrey GU3 3BH



Touch pad for the BBC from Cumana

Applause for winners

There were 47 winners in our Mushroom Competition. Twenty first prizewinners will receive Extended BASIC for the CBM 64 and Mushroom games Dune Buggy and Super Scramble. Twenty-seven runners-up will each receive copies of these games.

First prizes go to: A Logie-Campbell, Cheltenham; Elliot Mason, Hove; A F Turner-Howe, Basingstoke; Gazi Ahmet, London; Jonathan Rhodes, Rochdale; Andrew Norwood, Slough; Neil Stewart, Aberdeen; O Milling, Chepstow; M T Irwin, RAF Bruggen; Andrew Spence, Wilmslow; Jonathan Froggatt, Wimborne; F A Beale, Blandford Forum; Nigel Hood, Dereham; C Anderson, Arbroath; Mark McClue, Blandford Forum; Darren Hodge, Brentwood; Stephen Foy, Bexleyheath; Ian Newton, Chepstow; Marcus O'Mahoney, Co Clare; Ian Jones, Powys.

Runners-up: K Austin, Billingham; G Butler, Waterlooville; A P Porter, Rochford; J Watkins, Cheltenham; Sabine Beardsall, Stamford; A J Brooks, Weymouth; Steven Smith, Orpington; D C Ramsay, Bradford; K Bell, London; D S Nisbett, Leicester; C C Roberts, Telford; T C Stokes, Portsmouth; G Warcup, Bedford; J Woffenden, St Albans; C Clarke, Consett; Ricardo Wesley, S Ruislip; Andrew Morrison, Alloa; Paul Scoones, Hastings; Jason Torr, Onchan; Daniel Lezano, London; H D McWilliam, HQ 47 Field Regiment, Royal Artillery; W M Sengelow, Burnley; E Haggerty, Blyth; Dennis Richards, London; G Garrow, H NI; Haydon Tillett, Bexley; Richard Arimitt, Birmingham.

HOME COMPUTING WEEKLY
BRITAIN'S BRIGHTEST

Draughts
CBM 64 £7.95

Superior, Dept C, Ground Floor, Regent Hse, Skinner La, Leeds 7

If your inclination is to the ancient game of draughts rather than Chess, then this program is a serious player's dream. Games of logic transfer well to micros, and this is no exception.

The game is similar in design and format to the Chess program by the same company. It features a full range of options including take-backs, replays, choice of input forms, a myriad of skill levels, and the option of playing a friend or the computer.

In fact the Commodore will even play itself. The author favours the awful pink-brown board, but this can be altered, as can the colour of the pieces. The game will even suggest moves for you! This may seem like overkill, but keen draughtsmen should enjoy it.

The game is well presented, and easy to use. At the lowest level the computer plays a dreadful game, but at about four it shows promise. The temptation to cheat is forever present, but I'll never admit to it. If you are a draughts player, have no hesitation here, but you'll have to excuse me as I reach for my joystick. **D.A.**

instructions	80%
playability	75%
graphics	60%
value for money	70%

★★★

Chess
CBM 64 £7.95

Superior, Dept C, Ground Floor, Regent Hse, Skinner La, Leeds 7

If you fancy yourself as a Grand Master, write chess problems, or like me play very badly and need the practise, then this latest release from Superior will be ideal.

Many chess programs offer a bewildering array of options in addition to a good game, and this is no exception. There are full facilities for moving, setting care levels and time limits, altering previous moves, setting up chess problems and even solving them. The board is garishly drawn in brown and pink, but mercifully this can be changed.

When everything is to your satisfaction, you may play a game, and this is no mean achievement. I found I could win two out of three at the third level or below, but I was soon out of my depth. The endgame is usually very good, and the temptation to use the quit thinking option soon proved too much. It is perhaps a little too easy to cheat, as you may discover.

As a good quality chess program I can find no faults, and for serious players who own Commodore machines it's a must. **D.A.**

instructions	80%
playability	90%
graphics	60%
value for money	70%

★★★★

Flip Flap
48K Spectrum
£2.99

Software Super Savers

Flip Flap is a version of pinball, with 20 different screens, many with the novelty of four flippers.

The instructions on the inlay are poor, although once the demonstration mode has finished the scoring system is explained. However, no mention is made of the gamble feature — sometimes when you lose a ball you can either gamble, by pressing 'G' or press 'enter' to play on. If you gamble you stand an equal chance of gaining or losing points or a ball.

To move onto the next screen you must reach a target number of points — you are given two goes of five balls each to attempt this on each screen.

The graphics are uninspiring, and since many screens use the same objects, they appear similar, but the animation is good and the sound effects are life-like.

If you keep all your flippers pressed then it becomes very easy to score points — the ball will even speed up after hitting a stationary flipper!

Nevertheless Flip Flap is good fun for all pinball wizards, and it is excellent value for money. **S.J.E.**

instructions	50%
playability	68%
graphics	55%
value for money	80%

★★★

It's your choice

Here's a selection of interesting games and programs. Remember our reviewers opinions are worth reading

Select 1
CBM 64 £12.49

Computer Records, 21 Napier Pl, London W14 8LG

Select 1 is a compilation of 12 top games on one cassette. They are not just from one manufacturer trying to off-load their less successful games but are good games from a number of software houses.

It is impossible to review 12 games in a few sentances and as they are all well known it is probably unnecessary. However, if you were thinking of buying one of the following, Hunchback, Galaxy, Mr Wimpey, Kong, Hexpert, Ring of Power, Skramble, Denis Through The Drinking Glass, Moon Buggy, Purple Turtles, Cosmic Commando or Star Base Defence, you should buy this set instead. All the games are in fast loading form.

The presentation has not been skimped. In addition to the fast load feature, a menu is presented giving you the position of the individual games. At the back of the comprehensive instructions there is a games location index with spaces provided for your own cassette counter settings.

Select 1 is a winner for those who don't want the latest games but who want to build up a library of past hits at a reasonable price. **L.C.**

instructions	70%
playability	70%
graphics	70%
value for money	80%

★★★★

The Love Oracle
48K Spectrum
£14.95

Solar, Kemp Hse, 152-160 City Rd, London EC1V 2MX

A Chinese oracle created a book of wisdom, the I Ching. The Chinese threw six yarrow sticks, and the pattern these formed, a hexagram, could give the answer to a deep and meaningful question.

The Love Oracle does all this for you — on the theme of love. Once the program has thrown your hexagrams, you can ask such things as 'Are we compatible?', 'Do we have a future?', 'What do I want most from life?'.

The hexagram is supposed to be a reflection of your inner feelings and the program is serious. You might say that if the I Ching really exists, the pattern will be the same even if you throw several times. Ah, but the instructions say this is 'showing disrespect and trying to catch the I Ching out'.

The answers given are rather vague. I tried it on several people, myself included, but the answers were rarely appropriate even though we tried to show a 'positive attitude'.

Although a book is included and it is competently programmed, it's only worth buying if you believ in I Ching or hold many parties. Unfortunately, I do neither. **P.S.**

instructions	100%
playability	80%
practicality	30%
value for money	35%

★★★

Spray those bugs!

You're the avid gardener and you must destroy the pests in your mushrooms. Centipedes and bugs are nuisance: get rid of them! By James Crosby

This arcade-type game plots mushrooms at random across the screen. A centipede crawls across the top of the screen, and when it hits a mushroom or the edge of the screen then it moves down and crawls in the opposite direction. Meanwhile a big fat bug bounces along the bottom of the screen.

You are in control of a spray can at the bottom of the screen. You can move it left and right and you must try to stop the centipede from reaching the bottom of the screen, by spraying both mushrooms and centipede. The centipede shrinks when you hit it.

You can either dodge the bug or spray it but you can only have two shots at the bug each time it appears.

Hints on conversion

PLOT can be replaced by PRINT AT. POKE #26A,10 turns of key click and cursor. PEEK (520) reads keyboard. SCRN detects what's on screen for collisions, etc. SOUND and MUSIC and PLAY can be replaced by BEEP. CALL #FB01 to CALL #FB10 are also used to produce different sounds. CALL DEEK (#FFFA) gives a warm start. PRINT FRE("") forces garbage collection. PAPER and INK are screen colours. CHR$() prints different characters and screen attributes.

Your controls are: left cursor key to move left, down cursor to move right and space bar to spray.

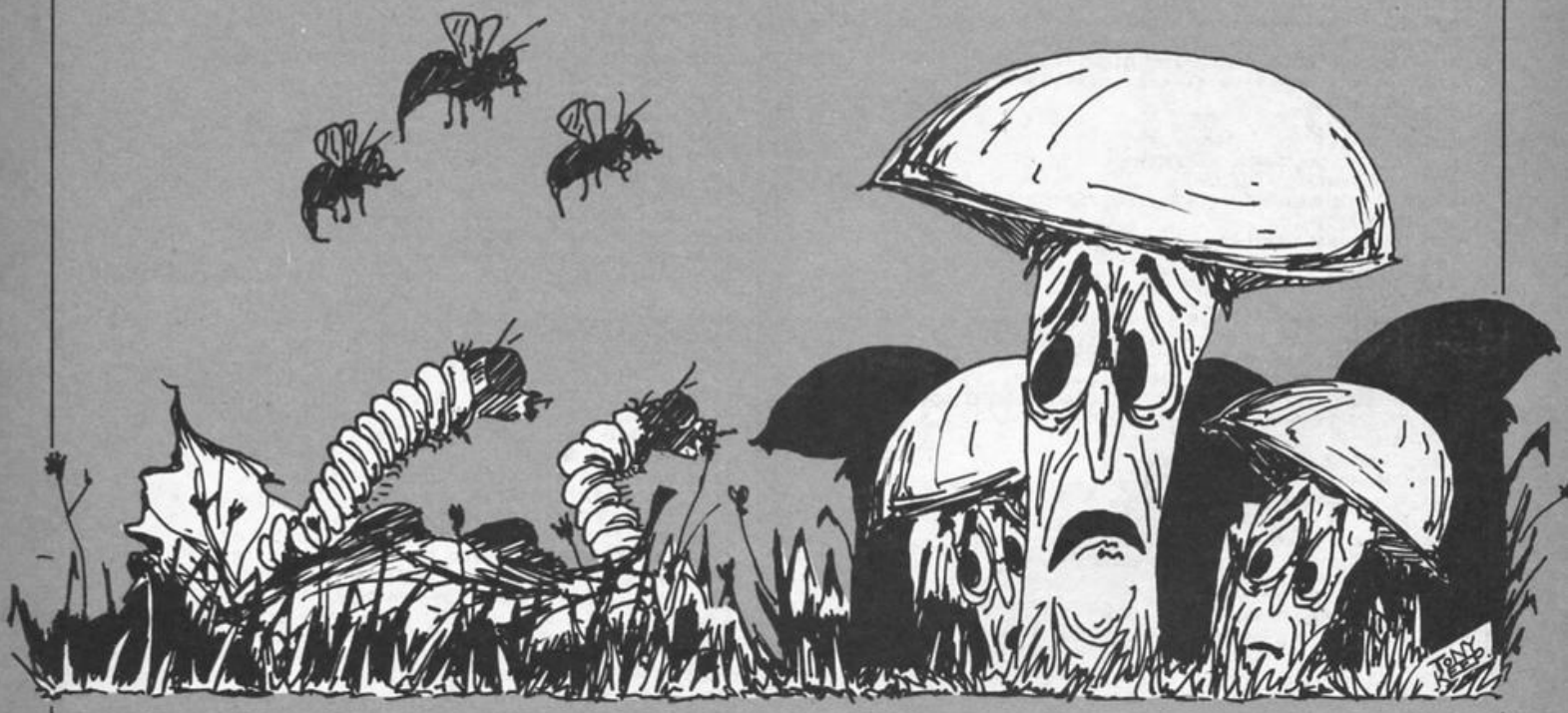
You don't need to type in the REMs in the listing, and if you don't want the instructions, leave out line 70 and lines 1730 onwards.

How it works

90-140 set variables
180-340 spray mushrooms and centipede
380-460 spray bug
500-570 plot mushrooms
620-810 main loop, move centipede right
850-1010 big fat bug
1040-1210 move centipede left
1250-1350 lose a life
1390-1590 another game prompt
1630-1710 redefine characters
1730-1950 instructions

Variables

C$, CENT$ centipede
AC,DO across and down positions of centipede
SC score
HI hi-score
LI lives
P keys pressed
A position of spray can
RE true or false return check
Q check to see which way centipede moves when space bar is pressed
B,BB across and down position of bug
SP cont for bug



```
1 REM ********************************
10 REM ************ BUGS ************
20 REM ******** BY J.R.CROSBY ********
30 REM ********************************
40 REM     IF THE INSTUCTIONS ARE NOT NEEDED THEN LEAVE
OUT LINE 70
50 REM     AND LINE 1730 ONWARDS
60 REM
70 PAPER0:INK7:POKE#26A,2:GOSUB1730
80 REM
```

```
 90 CLS:POKE618,10:INK4:LI=3:SC=0 :PRINTFRE("")
 100 A=18:P=PEEK(520):SP=0:GOSUB1630:CLS
 110 C$=CHR$(32)+"aaaaaa"+CHR$(4):AC=2:DO=3:C=8
 120 PLOT2,0,CHR$(3)+"SCORE:"+STR$(SC):PLOT15,0,CHR$(3)
+"LIVES:"+STR$(LI)
 130 PLOT24,0,CHR$(3)+"HI-SCORE:"+STR$(HS)
 140 GOTO500
 150 REM ****************
 160 REM ***** SPRAY ****
 170 REM ****************
```

ORIC PROGRAM

```
 180 SOUND4,13,15:PLAY0,1,0,0:WAIT5 :PLAY0,0,0,0
 190 PLOTAC+1,DO,"          "
 200 FORI=25 TO 3 STEP-2
 210 PLOTAC,DO,CHR$(1)+CENT$
 220 PLOTA+1,I,"h"
 230 IF SCRN(A+1,I-1)=97 OR SCRN(A+1,I-2)=97 THEN RE=1:
SC=SC+20
 240 IF RE=1 THEN RE=2:PLAY7,0,1,0:MUSIC1,4,6,15
 250 IF RE=2 THEN RE=0 :PLOTA+1,I," ":PLAY0,0,0,0:C=C-1
:RETURN
 260 IF SCRN(A+1,I-1)=98 OR SCRN(A+1,I-2)=98THEN SC=SC+
10:CALL#FB10:RE=3
 270 IF SCRN(A+1,I-1)=98 THEN PLOTA+1,I-1," "
 280 IF RE=3 THEN PLOTA+1,I-2," ":PLOTA+1,I," ":RE=0:RE
TURN
 290 PLOTA+1,I," "
 300 IFQ=2 AND AC<31 THENAC=AC+1
 310 IFQ=1 AND AC>2 THEN AC=AC-1
 320 PLOTAC,DO,CHR$(1)+CENT$
 330 PLOT2,0,CHR$(3)+"SCORE:"+STR$(SC)
 340 NEXTI:RETURN
 350 REM ******************
 360 REM **** SPRAY BUG ****
 370 REM ******************
 380 SOUND4,13,15:PLAY0,1,0,0:WAIT5 :PLAY0,0,0,0:PLOTB,
BB,"de"
 390 FORX=24 TO 19 STEP-1
 400 PLOTA+1,X,"h"
 410 IF SCRN(A+1,X-1)=100 OR SCRN(A+1,X-1)=101 THEN RE=
1:SC=SC+30
 420 IF RE=1 THEN PLOTA+1,X," ":PLOTB,BB,"30":CALL#FB07
 430 PLOTA+1,X," "
 440 IF RE=1 THEN WAIT10:PLOTB,BB,"  ":
 450 IF RE=1 THEN RE=0:POP:RETURN
 460 NEXT X:RETURN
 470 REM *************************
 480 REM ***** PLOT MUSHROOMS *****
 490 REM *************************
 500 IF SC>500 THEN FORI=1 TO 80 :GOTO520
 510 FORI=1TO40
 520 MUSH=INT(RND(1)*21)+8
 530 D=INT(RND(1)*20)+3
 540 PLOTMUSH,D,CHR$(4)+"b"
 550 PLAY7,0,0,0:SOUND4,20,0
 560 PLAY7,0,0,0:MUSIC3,6,2,9 :MUSIC2,0,12,8 :PLAY0,0,0
,0
 570 NEXTI
 580 REM ****************************
 590 REM ****** MAIN LOOP ************
 600 REM *** MOVE CENTAPIDE RIGHT  ***
 610 REM ****************************
 620 CALL#FB08
 630 PLAY3,3,3,200
 640 PLOTAC+1,DO-1,CHR$(4)+"          "
 650 PLOTAC,DO,CHR$(1)+CENT$
 660 CENT$=RIGHT$(C$,C)
 670 IF C<2 THEN ZAP:SC=SC+100:ZAP:GOTO100
 680 PLAY0,0,0,0
 690 IF AC<31 THEN AC=AC+1
 700 PLOT2,26,CHR$(6)
 710 P=PEEK(520)
 720 PLOTA,26," c "
 730 IFP=172 AND A>1 THEN A=A-1:PLOTA,26," c "
 740 IFP=180 AND A<35 THEN A=A+1:PLOTA,26," c "
 750 IFP=132 THEN Q=2:GOSUB180
 760 IFAC=31 THEN DO=DO+1:GOTO1040
 770 IF SCRN(AC+8,DO)=98 THEN DO=DO+1:GOTO 1040
 780 IF DO=26 AND AC>2 THEN 1250
 790 SP=SP+1
 800 IFSP>20 THEN GOSUB 850
 810 GOTO650
 820 REM ********************
 830 REM *** BIG FAT BUG ****
 840 REM ********************
 850 B=INT(RND(1)*20)+1:BB=19:SP=0
 860 FORI=B TO 35
 870 P=PEEK(520)
 880 PLOTB,BB,CHR$(6)+"de"
 890 IF SCRN(B+1,BB+2)=99 OR SCRN(B+2,BB+2)=99 THEN 125
0
 900 CALL#FB10
 910 PLOTB,BB,CHR$(4)+"  ":B=B+1
 920 IFBB<20 THEN R=0
 930 IF BB>23 THEN R=1
 940 IF R=1 THENBB=BB-1
 950 IF R=0 THENBB=BB+1
 960 IF P=180 AND A<35 THEN A=A+1:PLOTA,26," c "
 970 IF P=172 AND A>2THEN A=A-1:PLOTA,26," c "
 980 IF SP=2 THEN GOTO1000
 990 IF P=132 THENSP=SP+1:GOSUB380
1000 NEXTI:SP=0:RETURN
1010 REM *************************
1020 REM *** MOVE CENTAPIDE LEFT ***
1030 REM *************************
1040 CALL#FB08
1050 PLAY3,3,3,200
1060 PLOTAC,DO-1,CHR$(4)+"          "
1070 CENT$=RIGHT$(C$,C)+CHR$(32)
1080 PLOTAC,DO,CHR$(1)+CENT$
1090 IF C<2 THEN ZAP:SC=SC+100:ZAP:GOTO100
1100 PLAY0,0,0,0
1110 IF AC>2 THEN AC=AC-1
1120 P=PEEK(520)
1130 PLOTA,26," c "
1140 IFP=172 AND A>1 THEN A=A-1:PLOTA,26," c "
1150 IFP=180 AND A<36 THEN A=A+1:PLOTA,26," c "
1160 IF P=132 THEN Q=1:GOSUB180
1170 IFAC=2 THEN DO=DO+1:GOTO 620
1180 IFSCRN(AC-1,DO)=98 THEN DO=DO+1:GOTO  640
1190 IF DO=26 AND AC>2 THEN 1250
1200 IFSP>20 THEN GOSUB850
1210 GOTO1070
1220 REM ***********************
1230 REM *** LOOSE A LIFE *****
1240 REM ***********************
1250 PLOTB+1,BB,"  "
1260 FOR EAT=1TO15
1270 PLOTA,25,CHR$(6)+"de":WAIT10
1280 PLOTA+1,25,"  "
1290 PLOTA,25,CHR$(5)+"fg"
1300 PLAY7,0,0,0:MUSIC1,0,8,9:MUSIC2,0,1,10:MUSIC3,3,1
,9
1310 NEXT EAT
1320 LI=LI-1:PLOT15,0,"LIVES:"+STR$(LI)
1330 IFLI<1 THEN 1390
1340 PLOTA,25,"  ":SP=0
1350 PRINTFRE(""):LORESO:GOTO 100
1360 REM ***********************
1370 REM **** ANOTHER GAME ***
1380 REM ***********************
1390 LORES0
1400 IF SC>HS THEN HS=SC
1410 FORI=2TO36 STEP2
1420 PLOTI,5,"de"
1430 CALL#FB10
1440 PLOTI,25,"de"
1450 NEXTI
1460 FORI=5TO24STEP2
1470 PLOT36,I,"de"
1480 CALL#FB10
1490 PLOT2,I,"de"
1500 NEXTI
1510 PLOT12,9,"SORRY YOU LOST"
1520 PLOT12,11,"YOUR SCORE WAS"+STR$(SC)+CHR$(7)
1530 PLOT12,13,"DO YOU WISH TO"
1540 PLOT12,15,"TRY AGAIN Y/N"
1550 K$=KEY$
1560 IFK$="Y"THEN SP=0:PING:GOTO 90
1570 IFK$="N" THENCALLDEEK(#FFFA)
1580 GOTO1550
1590 END
1600 REM ***********************
1610 REM ***** REDEFINE ******
1620 REM ***********************
1630 FORI=(46080+(ASC("a")*8)) TO (46080+(ASC("h")*8)+
7)
1640 READDTA:POKEI,DTA:NEXT
1650 DATA34,30,26,31,26,30,34,0
1660 DATA12,30,63,63,12,12,12,12
1670 DATA14,12,30,30,30,30,30,30
1680 DATA3,5,31,43,12,7,4,24,48,40,62,53,13,56,8,6
1690 DATA3,5,15,11,12,7,0,0,48,40,60,52,12,56,0,0
1700 DATA10,53,42,22,43,21,12,8
1710 RESTORE:RETURN
1720 REM ****** INSTRUCTIONS ********
1730 CLS:PRINT:PRINTSPC(14);CHR$(27)"J BUGS "
1740 PRINTSPC(14);CHR$(27)"J BUGS "
1750 PRINT"IN THIS GAME YOU ARE INCHARGE OF A"
1760 PRINT"SPRAY CAN,YOU CAN ONLY MOVE LEFT"
1770 PRINT"AND RIGHT.YOU MUST TRY AND STOP THE"
1780 PRINT"CENTAPIDE FROM REACHING THE BOTTOM OF "
1790 PRINT"THE SCREEN.YOU DO THIS BY SPRAYING "
1800 PRINT"THE MUSHROOMS AND THE CENTAPIDE."
1810 PRINT:PRINT"EVERY TIME YOU HIT A MUSHROOM YOU "
1820 PRINT"GET 10 POINTS. "
1830 PRINT"EVERY TIME YOU HIT THE CENTAPIDE IT"
1840 PRINT"WILL GET SHORTER AND YOU WILL GET "
1850 PRINT"20 POINTS."
1860 PRINT
1870 PRINT"WHEN A BIG FAT BUG BOUNCES ALONG THE "
1880 PRINT"BOTTOM OF THE SCREEN THEN FOR EVERY "
1890 PRINT"PASS IT MAKES YOU GET TWO SHOTS AT IT"
1900 PRINT"IF YOU HIT THE BUG YOU GET 30 POINTS "
1910 PRINT:PRINT"USE THE LEFT CURSOR KEY TO MOVE LEFT
"
1920 PRINT"USE THE DOWN CURSOR KEY TO MOVE RIGHT "
1930 PRINT"USE THE SPACE BAR TO SPRAY "
1940 PRINT:PRINT"   PRESS ANY KEY TO START "
1950 GETA$:PING:WAIT100:RETURN
```

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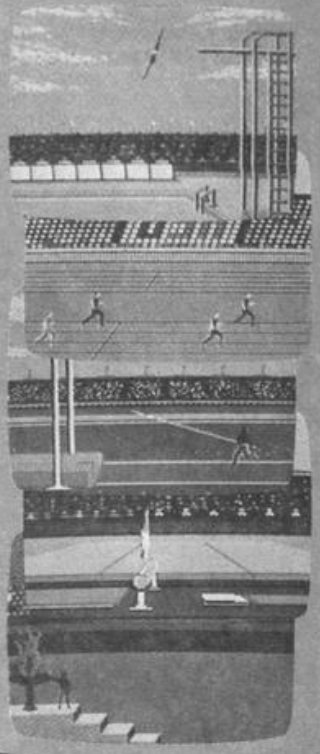
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Arcade addiction

If you love arcade games, then read this page of review. Our experts give you their views

Percy Penguin CBM 64 £7.95

Superior, Dept. C, Ground Floor, Regent Hse, Skinner La, Leeds 7

The arcade game of Pengo has been transferred to various machines with varying success. This is a standard version from Superior, and is one of their first releases for the Commodore. Loading took only a couple of minutes and was error-free despite no fast-load facility.

The plot is the standard ice-block maze where Percy shunts cubes into position to gain bonus points, while being pursued by several green Sno-Bees, which march about the screen to a depressing tune. Percy kills the Bees by pushing ice-blocks at them, which gets more difficult on each screen. Lining up the three magic blocks gives a bonus score based on the time taken. I found the joystick control a little sluggish, but with practise you can play more confidently.

This one is a little slower than the original, the graphics are clear and well-defined, but it lacks variety even though different levels are available. Dedicated fans of the game will enjoy it, but it is not what I would call the definitive version and may prove disappointing to arcade players. **D.A.**

instructions	60%
playability	50%
graphics	65%
value for money	55%

★ ★

Quack A Jack Amstrad CPC464 £8.95

Amsoft, 169 Kings Rd, Brentwood, Essex

This is the first version of Blockman that I have seen for this machine and it is an interesting if slightly quirky version.

You play Red Jack the pirate king and you have a three-fold mission. You are expected to survive, to collect wealth and to scramble eggs. The eggs are found on a grid of flags, which, as you walk across, crumble away to nothing and prevent you from returning by that path.

You are a duck and wander around avoiding cooking pots.

I said that this was quirky.

You are chased by creatures from vampire rabbits to prawns and snails. The only graphic characters that are convincing are th duck and the eggs, which flash pink and blue. Well what do you expect from a terraductile! The other characters are all a little chunky and ill-defined especially the piles of coins which look more like bird droppings.

A good game that might just grab you and make you play just once more. **D.C.**

instructions	75%
playability	85%
graphics	70%
value for money	85%

★ ★ ★ ★

Nuke Lear 48K Spectrum £2.99

Charlie Charlie Sugar, 14 Langton Way, London SE3 7TL

This game has a very poor cover and confusingly detailed instructions. As Nuke Lear, you hold the most important job of the twenty-first century — controlling nuclear waste.

You must channel radioactive barrels into legal dumps, making sure they do not drop into illegal ones where too high a build-up will cause a huge explosion. Screen presentation shows a network of coloured roads, plus floors connected by two poles.

You control a cutely animated man and must alter the paths of the deadly waste with... your head! On later levels there are telephones to answer and the game dramatically speeds up. It's all good, clean fun, very simple in idea but with complex rules.

Colour, sound and graphics are okay, the latter being ultra smooth, but I felt that with a little more effort the game could have been much better. Maybe a hi-resolution screen or a more complex layout would have added playability. The game also had an annoying tendancy to crash.

Still, at the budget price, good value for money, maybe more suitable for younger players. Certainly better than some cheap products. **P.S.**

instructions	80%
playability	60%
graphics	50%
value for money	65%

★ ★ ★

Winged Warlords 32K BBC £7.95

Superior, Dept C, Regent Hse, Skinner La, Leeds 7

In this latest release from Superior we find ourselves battling the enemy on the back of an ostrich. This may sound quite reasonable, however, I feel that the author overlooked one tiny little fact, ostriches don't fly! This doesn't really take away the enjoyment from the game. You fly around the screen attempting to knock the enemy from their mounts.

This is a one or two player game and you have to attack the enemy from above. The highest lance wins. Once one of the enemy is knocked down it turns to an egg. If you fail to crush this it turns back into a bird.

On playing the game I have noticed one or two small bugs. For example when you have killed all of the enemy the words WAVE 2 appear in the middle of the screen. It is possible to land on top of them or bounce off the sides. These bugs do not really have any great effect.

The graphics are reasonably good and the instructions are quite adequate. A little time is needed to familiarise with the method, however. **D.B.**

instructions	75%
playability	80%
graphics	85%
value for money	70%

★ ★ ★ ★

Jumping Yosser Dragon 32/64 £5.95

Knight, 93a High St, Eston, Cleveland TS6 9JD

It's good to see that there is still new software for the ill-fated Dragon. This is an arcade game where you have to jump from one platform to another to reach the top of the screen. In fact, you have to reach first the top left-hand corner of the screen, to obtain a key, then the top right-hand corner, to open a door to the next screen.

The game has 15 screens, all with different patterns of platforms and monsters. You have three lives, but gain an extra one after five screens. Completing all screens would take great practice.

The graphics and sound effects are as good as you could expect on the Dragon. What I didn't like was the lengthy introductory sequence, in which each of the monsters does a dance — though you do not have to sit through this, fortunately — and the instruction sequence, which is punctuated by irrelevant pieces of music.

Overall, this is an entertaining and challenging game, well worth the money. **M.N.**

instructions	70%
playability	80%
graphics	85%
value for money	90%

★ ★ ★ ★

Talk to your micro

Communicate via speech to your computer with Micro Command. We also assess the Zip Stick joystick for you

Micro Command £49.95

Orion Data, 3 Cavendish St, Brighton, E Sussex BN2 1RN

One day in the not too distant future keyboards may become redundant; we may be able to provide all commands and data to computers with speech via a microphone. If that seems like a fantasy, look no further than a Spectrum add-on from Orion Data to get a taste of the future. But when you use Orion's Micro Command Speech Recognition Unit, you'll realise this science still has a long way to go before we can throw away our keyboards.

For the £50 price tag, you get a solidly built plug-in module, a microphone which connects to the module via a 3.5mm jack plug, a demonstration tape and two slim booklets. The size of these booklets indicates the simplicity of the system.

The blue eight-page user's manual takes you through the demonstration tape explaining how to operate the system. A yellow eight-page booklet explains enough of the system's workings to allow you to write your own programs incorporating speech recognition.

The first part of the demonstration tape involves you teaching the unit the words UP and DOWN. You repeat each word four times, then play a tirvial game to see how well you have instructed Micro Command, and whether you can say these words reproducibly.

This is where you discover the main weakness. Unless you say the words in exactly the same way, the system fails to recognise the word. The manual takes great pains to point this out, and warns that you may have to try several times to get a high (X80%) success rate. As an incentive, Orion Data has established the Micro Command 100 Club for users achieving a 100% success rate. I suspect few users will achieve this.

Once you have achieved at least 80% successful recognition of UP and DOWN, you go on to teach the computer LEFT, RIGHT and STOP. With these five verbal commands, you can play the frustrating little game Sheeptalk, which appears on the demonstration tape. The object is to command a sheepdog to herd well-scattered sheep into a pen. No score is provided so your only measures of success are the number of sheep in the pen and your ability to command the dog. When I played, either the unit or I forgot my precise pronounciation of DOWN, with the result that the dog was stuck at the top of the screen!

For your own applications, you could teach the computer up to 15 words in any one program. From experience, you have to choose words which sound quite different. In Sheeptalk I found the computer had difficulty in differentiating between UP and STOP. Presumably the strong, final P sounds the same to the computer.

Apart from the obvious difficulty in recognising words, I was also annoyed when the TEACH program crashed with a BASIC error message on a couple of occasions. For such an expensive product, I don't expect such an obvious lack of error trapping.

Speech recognition on home computers still has a long way to go. At present, it's little more than a toy, and at just under £50, Micro Command is a rather expensive plaything.



Orion's Micro Command

Zip Stick Competition Joystick £12.95

CCS, PO Box 1W9, Leeds LS16 6RE

Machine: Any fitted with nine-pin D plug, and suitable interface

One of the sad facts about joysticks is that once you start to use them, their good-looking exteriors soon crack under pressure from your none too delicate fingertips.

In this respect the Zip Stick is exceptional. Advertised as the 'tough one', beneath its cream plastic lurks a steel shaft, huge nylon bearings and a large coil spring, together with a steel rod which bears the top-mounted fire button. The fire button is duplicated on the base, which is small enough to hold in the hand. Internally, the standard of construction is just as high, with soldered tags and stainless steel leaf springs.

Given stringent testing over a number of days, the Zip Stick came out unscathed, apart from looking rather dirty, after sterling efforts to wreck it! Its claim to be a competition stick is, however, a little over the top. It takes a large hand movement to produce a response, and the fire buttons have a long travel, all of which adds a microsecond or two to your response time in comparison to the Kempston 5000.

You may feel, however, that the top-mounted fire button makes up for this. Certainly, for rugged dependability, the Zip Stick can be highly recommended. You won't break this one! **D.M.**

Good King Wencelas

How about sending a Christmas card to your friends — by computer? That's just what you can do with this carol by Iain Murray

Good King Wencelas is a musical Christmas card for the Commodore 64. The tune is played by the computer as the words appear on the screen, and the characters in the song act out their parts. The tune is played by one of four randomly selected instruments, and the sprites of the characters move across the screen.

The program is in BASIC so should pose no typing difficulties. New programmers of the Commodore 64 should note the special inverse characters in some of the print statements. These are special codes for colour and inverse mode. They are explained in REM statements within the program (REMs do not need to be typed in), but if in doubt consult your manual.

The program contains a large amount of data. In typing the verse lines, remember to type the opening and closing quotes. The numbers should be carefully checked, but any error will be spotted by the program. Remember to SAVE the program to tape or disc once typed and **before running**. If you have made an error, the computer may 'lock up' and you'll have to turn it off, losing your program.

Variables

V sprite start
N sound start
C1,C2,C3 DATA checksum counters
I,J,K, local data loop counters
A last DATA number read
V$(10,4) song verses (10 verses, 4 lines each)
F(10,2) note frequencies POKEd to sound registers
N(55,2) notes and duration (55 notes per verse)
VR verse counter
NS number of sprites to be moved in this verse
ND note duration
C(10) sprite variable to be changed (i.e. V+C( ))
CH(10) amount to be added to sprite location at each note
PK(10) position of sprite at start of verse
SP$ string of 26 spaces
S,TE,TT note timing loop variables
RN random instrument number

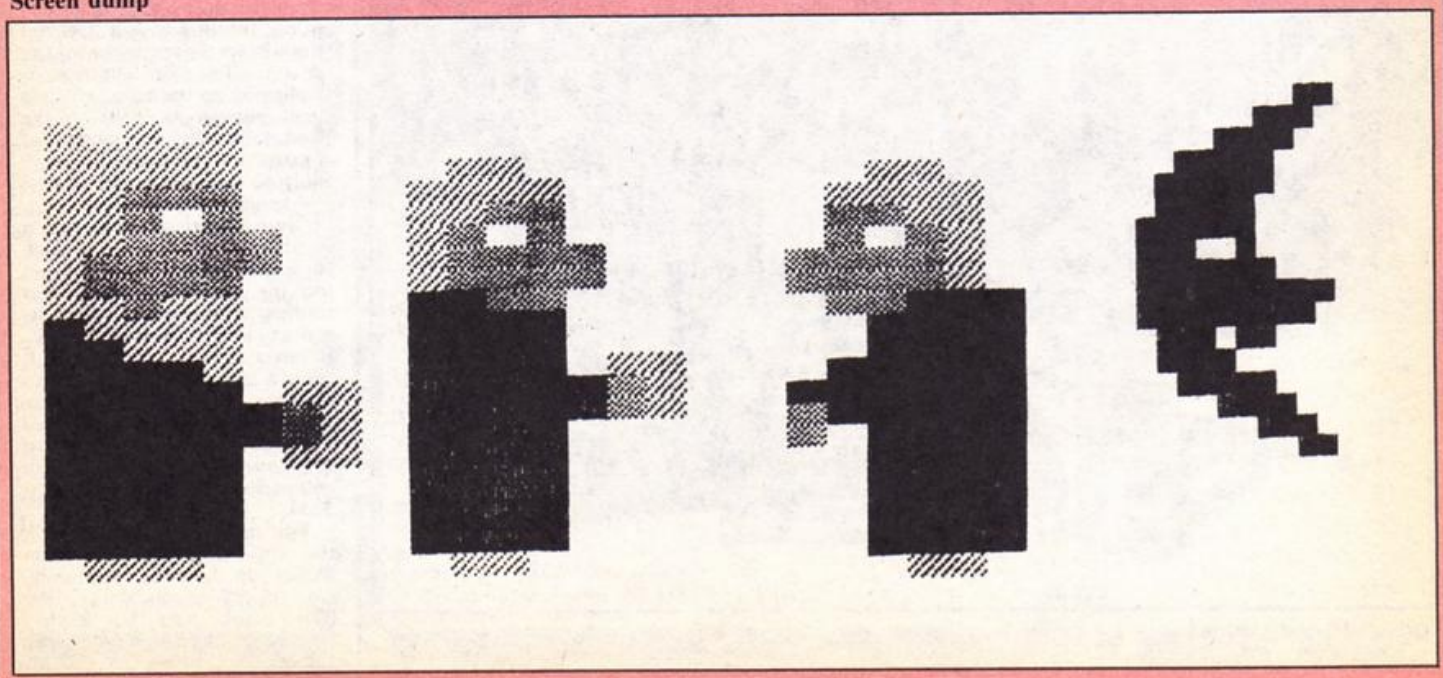
How it works

10-48 CONTROL codes
49-190 READ in DATA statements and check sum
200-280 set up sprites
500 start verse loop
1000-1190 first verse — draw castle and set up
1198-1240 second verse set up
1298-1320 third verse set up
1398-1410 fourth verse set up
1498-1510 fifth verse set up
1598-1640 sixth verse set up
1698-1790 seventh verse — clear castle and set up
1798-1830 eighth verse set up
1897-1990 ninth verse — draw poor man's house and set up
2000 tenth verse set up
2500-2810 perform verses
6000-6130 start playing new note
8000-8030 print snow (two lines of white inverse spaces at bottom of screen)
10000-10390 DATA for song verses
10500-10910 DATA for sprites

Hints for conversion

As this program makes extensive use of the Commodore's sprite and sound facilities (which are unique to it), users of other computers will find it very difficult to convert this program to their machine. However, examination of the structure of the program may give you some ideas on how to implement the program on your own micro.

Screen dump



Listing

```
10 REM *** GOOD KING WENCESLAS ***
20 REM *** BY IAIN MURRAY (C) 1984 ***
30 REM *** FOR HOME COMPUTING WEEKLY ***
40 REM *** MERRY CHRISTMAS TO ALL READERS ***
41 REM **** REM STATEMENTS NEED NOT BE TYPED IN !! ****
42 REM ** CONTROL CHARACTERS USED ARE AS FOLLOWS - **
43 REM **" [CLR] CLR SCREEN      [HOME] HOME                "**
44 REM **" [RIGHT] CRSR RIGHT    [DOWN] CRSR DOWN           "**
45 REM **" [CTRL 2] WHITE (CTRL 2)  [CBM 2] BROWN (CBM 2)   "**
46 REM **" [CBM 8] GREY (CBM 8)                             "**
47 REM **" [RVS ON] REV ON (CTRL 9) [RVS OFF] REV OFF (CTRL 0)  "**
48 REM ** NOTE - CBM IS KEY BELOW RUN/STOP AT LEFT **
49 DIM V$(10,4),F(10,2),N(55,2)
50 V=53248:N=54272:POKE V+32,1:POKE V+33,14:POKE N+24,15
60 C1=0:C2=0:C3=0:POKE V+21,0
69 REM [CLR] [WHITE] [7 DWN] [7 RHT]
70 PRINT CHR$(142)"[CLR][WHITE][7 DWN][7 RHT]YOUR COMMODORE  64 PRESENTS"
79 REM [4 DWN] [11 RHT]
80 PRINT "[4 DWN][11 RHT]GOOD KING WENCESLAS"
89 REM [4 DWN] [7 RHT]
90 PRINT "[4 DWN][7 RHT]PLEASE WAIT WHILE I TUNE UP"
100 FOR K=1 TO 10:FOR J=1 TO 4:READ V$(K,J):NEXT:NEXT
110 FOR K=0 TO 62:READ A:C1=C1+A:POKE 704+K,A:NEXT
120 FOR K=13 TO 15:FOR J=0 TO 62:READ A:C2=C2+A:POKE K*64+J,A:NEXT:NEXT
130 FOR K=253 TO 254:FOR J=0 TO 62:READ A:C3=C3+A:POKE K*64+J,A:NEXT:NEXT
140 IF C1=6908 AND C2=13973 AND C3=4551 THEN 150
144 REM [2 DWN]
145 PRINT "[2 DWN]ERROR IN SPRITE DATA !!":END
150 FOR K=16320 TO 16382:POKE K,255:NEXT
155 C1=0:C2=0
160 FOR K=1 TO 8:READ F(K,1),F(K,2):C1=C1+F(K,1)+F(K,2):NEXT
170 FOR K=1 TO 53:READ N(K,1),N(K,2):C2=C2+N(K,1)+N(K,2):NEXT
180 IF C1=1087 AND C2=255 THEN 200
189 REM [2 DWN]
190 PRINT "[2 DWN]ERROR IN SOUND DATA !!":END
199 REM ** SET UP SPRITES **
200 POKE 2040,15:POKE 2041,13:POKE 2042,14:POKE 2043,11
210 POKE 2044,253:POKE 2045,254:POKE 2046,255:POKE 2047,255
220 POKE V+27,255:POKE V+16,4:POKE V+23,209:POKE V+29,209
230 POKE V+28,14:POKE V+37,10:POKE V+38,7
240 POKE V+39,9:POKE V+46,0
250 POKE V+40,2:POKE V+41,3:POKE V+42,6
260 POKE V+43,7:POKE V+44,0:POKE V+45,0
270 POKE V+12,120:POKE V+13,120:POKE V+14,120:POKE V+15,200
280 POKE V,120:POKE V+1,192
500 FOR VR=1 TO 10:REM * 10 VERSES
510 IF VR/2<>INT(VR/2) THEN NC=0:RN=INT(RND(TI)*4)+1
520 ON VR GOTO 1000,1200,1300,1400,1500,1600,1700,1800,1900,2000
999 REM ** 1ST VERSE **
998 REM * DRAW CASTLE, MOVE KING **
1000 PRINT CHR$(14)
1024 REM [CLR] [6 DWN] [GREY] [REV ON] [REV OFF]
1005 PRINT "[CLR][6 DWN][GREY]          [RVS ON] [RVS OFF] [RVS ON] [RVS OFF] [RVS ON] [RVS OFF] [RVS ON] [RVS OFF] [RVS ON] [RVS OFF] [RVS ON] [RVS OFF] [RVS ON] [RVS OFF] [RVS ON] [RVS OFF]"
1009 REM [REV ON] [REV OFF] IN NEXT FEW LINES
1010 PRINT "          [RVS ON]  [RVS OFF]"
1020 PRINT "          [RVS ON]  [RVS OFF]"
1029 REM BOXES ARE [CBM V] AND [CBM C] LINE IS [SHIFT -]
1030 PRINT "          [RVS ON]  [RVS OFF] | [RVS ON]  [RVS OFF]"
```

```
1040 PRINT "          ▪    ▬  |  ▪    ▬"
1050 PRINT "          ▪    ▬  |  ▪    ▬"
1060 PRINT "          ▪    ▬  |  ▪    ▬"
1070 PRINT "          "▪          ▬ "
1080 PRINT "           ▪          ▬"
1085 REM GRAPHICS AT RIGHT FORM TREE
1090 PRINT "▪ ▬ ▪ ▬ ▪ ▬ ▪ ▬ ▪ ▬ ▪                ▬        ▪└┴┤"
1100 PRINT "▪                        ▬     ▪└┴┼┴┤"
1110 PRINT "▪                        ▬    ▪┴┼┴┤ ▪┤"
1120 PRINT "▪                        ▬       ▪▪ ▬ │▪"
1130 PRINT "▪              ▬    ▪     ▬      ▪└┘ ▬┘▪"
1140 PRINT "▪              ▬    ▪     ▬       ▪▪ ▪"
1150 PRINT "▪              ▬    ▪     ▬      ▪└┘ ▪"
1160 PRINT "▪              ▬    ▪     ▬▪   ┌ ─ ▪ ▬  ─  ▪ ┐"
1170 GOSUB 8000
1180 POKE V+6,108:POKE V+7,142:POKE V+21,201
1185 NS=1:C(1)=6:CH(1)=1.4:PK(1)=108:ND=20
1190 GOTO 2500
1198 REM ** 2ND VERSE **
1199 REM * MOVE MOON AND POOR MAN *
1200 NS=2:C(1)=9:C(2)=4:CH(1)=-3:CH(2)=-3
1210 PK(1)=180:PK(2)=85:ND=18
1220 POKE V+4,85:POKE V+5,213:POKE V+8,35:POKE V+9,180
1230 POKE V+21,221
1240 GOTO 2500
1298 REM ** 3RD VERSE **
1299 REM ** MOVE PAGE BOY **
1300 NS=1:C(1)=2:CH(1)=0.6:PK(1)=110:ND=20
1310 POKE V+2,110:POKE V+3,143:POKE V+21,223
1320 GOTO 2500
1398 REM ** 4TH VERSE **
1399 REM * MOVE POOR MAN OFF **
1400 NS=1:C(1)=4:CH(1)=3:PK(1)=4:ND=20
1410 GOTO 2500
1498 REM ** 5TH VERSE **
1499 REM * MOVE PAGE *
1500 NS=1:C(1)=2:CH(1)=-0.6:PK(1)=126:ND=20
1510 GOTO 2500
1598 REM ** 6TH VERSE **
1599 REM * MOVE PAGE AND KING *
1600 NS=2:C(1)=6:C(2)=2:CH(1)=4:CH(2)=4
1610 PK(1)=140:PK(2)=120:ND=18
1620 POKE V+7,213:POKE V+3,213:POKE V+27,245
1630 POKE V+6,140:POKE V+2,120:POKE V,96
1640 GOTO 2500
1698 REM ** 7TH VERSE **
1699 REM * MOVE KING, PAGE AND SNOW *
1700 POKE V+21,16:GOSUB 8000
1710 POKE 2040,11:POKE 2042,14:POKE 2043,254
1720 POKE 2045,254:POKE 2046,254:POKE 2047,254
1730 POKE V+39,6:POKE V+42,1:POKE V+44,1
1732 POKE V+45,1:POKE V+46,1:POKE V+28,7
1734 POKE V+23,248:POKE V+29,248:POKE V+16,8
1735 POKE V+27,0:POKE V,30:POKE V+2,10
1736 POKE V+6,20:POKE V+10,50:POKE V+12,125
1738 POKE V+14,200:POKE V+7,70:POKE V+11,100
1740 POKE V+13,80:POKE V+15,110:POKE V+1,213
1750 NS=6:C(1)=0:C(2)=2:C(3)=7:C(4)=11:C(5)=13:C(6)=15
1760 CH(1)=3:CH(2)=3:CH(3)=5:CH(4)=5:CH(5)=3:CH(6)=4
```

```
1770 PK(1)=30:PK(2)=10:PK(3)=70:PK(4)=100:PK(5)=80:PK(6)=110
1780 ND=5:POKE V+21,251
1790 GOTO 2500
1798 REM ** 8TH VERSE **
1799 REM * MOVE KING, PAGE AND SNOW *
1800 NS=6:C(1)=0:C(2)=2:C(3)=7:C(4)=11:C(5)=13:C(6)=15
1810 CH(1)=3:CH(2)=3:CH(3)=5:CH(4)=5:CH(5)=3:CH(6)=4
1820 PK(1)=108:PK(2)=88:PK(3)=200:PK(4)=250:PK(5)=155:PK(6)=210
1830 GOTO 2500
1897 REM ** 9TH VERSE **
1898 REM * MOVE KING, PAGE AND POOR MAN *
1899 REM * PRINT POOR MAN'S HOUSE *
1900 SP$="                                    ":REM 26 SPACES
1904 REM [HOM] [WHITE] [12 DWN]  CHECKS ARE [CBM +] AND [CBM -]
1905 PRINT "■■■■■■■■■■■■■■■■";SP$;"      ■■■■"
1906 PRINT SP$;"        ■■■■ "
1907 PRINT SP$;"       ■■ "
1908 REM [BROWN] [CBM I] [WHITE] LINES ARE [CBM T]
1909 PRINT SP$;"▚   ▂ ▄ ▒ "
1910 PRINT SP$;"▚  ▞ ▔ ▜ ▌ "
1915 PRINT SP$;" ▞ ▔▔▔ ▜ "
1920 PRINT SP$;"▞ ▔▔▔▔▔ ▜"
1925 PRINT SP$;"▞▔▔▔▔▔▔▔▜"
1930 PRINT SP$;"▚▜ ▞ ▜ ▚ ▜ ▞ ▜"
1934 REM FENCE IS [CBM R] [SHIFT *] AND [CBM S]
1935 PRINT SP$;"▚▔▔▔▜ ▚▔▔▔▜┬┬┬┐"
1938 REM FENCE IS [SHIFT -]
1940 PRINT SP$;"▚▔▔▔▜ ▚▔▔▔▜ │ │ │"
1950 NS=3:C(1)=0:C(2)=2:C(3)=4
1960 CH(1)=2:CH(2)=2:CH(3)=-2
1970 PK(1)=120:PK(2)=100:PK(3)=244:ND=15
1980 POKE V,120:POKE V+2,100:POKE V+4,244:POKE V+21,23
1990 GOTO 2500
2000 NS=1:C(1)=0:CH(1)=0:ND=22
2498 REM ** PERFORM VERSE **
2499 REM [HOM]  LINE 2502 HAS 39 SPACES
2500 PRINT "▒":FOR LN=1 TO 4
2502 PRINT "                                       ":NEXT
2504 REM [HOM] [WHITE] [3 RGHT]
2505 PRINT "▒▒":FOR LN=1 TO 4:PRINT "■■■";V$(VR,LN):NEXT
2508 NN=26:IF VR/2=INT(VR/2) THEN NN=27
2510 FOR NP=1 TO NN:GOSUB 6000
2520 FOR S=1 TO NS
2525 PK(S)=PK(S)+CH(S):IF PK(S))=250 THEN CH(S)=0
2530 POKE V+C(S),INT(PK(S)):NEXT S
2540 TE=ND*5*N(NC,2)
2550 IF ((VR=7 OR VR=8) AND N(NC,2)=2) THEN TE=TE*3
2560 FOR TT=1 TO TE:NEXT TT:NEXT NP
2800 NEXT VR:POKE N+24,0
2809 REM [6 DWN]
2810 PRINT "■■■■■■":END
5999 REM *** START NEW NOTE ***
6000 POKE N+4,0:NC=NC+1
6010 POKE N+1,F(N(NC,1),1):POKE N,F(N(NC,1),2)
6020 ON RN GOTO 6100,6110,6120,6130
6100 POKE N+2,0:POKE N+3,0:POKE N+4,33:POKE N+5,12:POKE N+6,12:RETURN
6110 POKE N+2,0:POKE N+3,0:POKE N+4,17:POKE N+5,10:POKE N+6,10:RETURN
6120 POKE N+2,5:POKE N+3,150:POKE N+4,65:POKE N+5,9:POKE N+6,9:RETURN
6130 POKE N+2,255:POKE N+3,2:POKE N+4,65:POKE N+5,9:POKE N+6,0:RETURN
```

```
7998 REM ** DRAW GROUND **
7999 REM [CLR] [22 DWN]
8000 IF VR>2 THEN PRINT "[WHITE][REV ON][40 SPACES]"
8009 REM [WHITE] [REV ON] 40 SPACES
8010 PRINT "[REV ON]                                        ";
8019 REM [REV ON] 39 SPACES [HOM]
8020 PRINT "[REV ON]                                       [REV OFF]"
8030 POKE 2023,160:POKE 56295,1:RETURN
9998 REM **** DATA ****
9999 REM *** DATA FOR VERSES ***
10000 DATA "|OOD ↑ING OENCESLAS LOOKED OUT,"
10010 DATA "ΓN THE ←EAST OF ♥TEPHEN,"
10020 DATA "OHEN THE SNOW LAY ROUND ABOUT,"
10030 DATA "←EEP AND CRISP AND EVEN."
10040 DATA "|RIGHTLY SHONE THE \OON THAT NIGHT,"
10050 DATA "|HO' THE FROST WAS CRUEL,"
10060 DATA "OHEN A POOR MAN CAME IN SIGHT,"
10070 DATA "|ATH'RING OINTER FUEL."
10080 DATA " |ITHER, PAGE, COME STAND BY ME,"
10090 DATA "↖F THOUGH KNOW'ST IT TELLING,"
10100 DATA " |ONDER PEASANT, WHO IS HE?"
10110 DATA "OHERE AND WHAT HIS DWELLING?"
10120 DATA "♥IRE, HE LIVES A GOOD LEAGUE HENCE,"
10130 DATA "←OWN BENEATH THE MOUNTAIN,"
10140 DATA "←LOSE AGAINST THE FOREST GATE,"
10150 DATA "|Y ♥AINT ♠GNES' ←OUNTAIN."
10160 DATA "|RING ME FLESH, BRING ME WINE,"
10170 DATA "|RING ME PINE LOGS HITHER."
10180 DATA "|HOU AND ↖, WE'LL SEE HIM DINE,"
10190 DATA "OHEN WE BEAR THEM THITHER."
10200 DATA "┐AGE AND MONARCH, ON THEY WENT,"
10210 DATA "ΓN THEY WENT TOGETHER,"
10220 DATA "|HROUGH THE RUDE WIND'S WILD LAMENT,"
10230 DATA "|HROUGH THE BITTER WEATHER."
10240 DATA "♥IRE THE NIGHT IS DARKER NOW,"
10250 DATA "♠ND THE STORM GROWS LOUDER,"
10260 DATA "←AILS MY HEART, ↖ KNOW NOT HOW,"
10270 DATA "↖ CAN GO NO LONGER."
10280 DATA "\ARK MY STEPS, BE BRAVE MY PAGE,"
10290 DATA "|READ THOU IN THEM BOLDLY,"
10300 DATA "|HEN THOU'LT FIND THE WINTER'S RAGE,"
10310 DATA "←REEZE THY BLOOD LESS COLDLY."
10320 DATA "↖N HIS MASTER'S STEPS HE TROD,"
10330 DATA "OHERE THE SNOW LAY DINTED,"
10340 DATA " |EAT WAS IN THE VERY SOD,"
10350 DATA "OHICH HIS FOOT HAD PRINTED."
10360 DATA "|HEREFORE, ←HRISTIAN MEN, BE SURE,"
10370 DATA "OEALTH OR RANK POSSESSING,"
10380 DATA " |E WHO DO BLESS THE POOR,"
10390 DATA "♥HALL YOURSELVES FIND BLESSING."
10498 REM *** DATA FOR SPRITES ***
10499 REM * THE KING *
10500 DATA 0,204,192,0,255,192,0,255,192
10510 DATA 0,245,64,0,244,64,0,245,80
10520 DATA 0,213,80,0,213,64,0,247,192
10530 DATA 0,191,192,0,175,192,0,170,192
```

```
10540 DATA 0,170,143,0,170,167,0,170,167
10550 DATA 0,170,143,0,170,128,0,170,128
10560 DATA 0,170,128,0,170,128,0,63,0
10569 REM * THE PAGE BOY *
10570 DATA 0,0,0,0,0,0,0,60,0
10580 DATA 0,255,0,0,245,0,0,209,0
10590 DATA 0,213,64,0,213,64,0,165,0
10600 DATA 0,170,0,0,170,0,0,170,60
10610 DATA 0,170,156,0,170,156,0,170,0
10620 DATA 0,170,0,0,170,0,0,170,0
10630 DATA 0,170,0,0,170,0,0,60,0
10639 REM * THE POOR MAN *
10640 DATA 0,0,0,0,0,0,0,60,0
10650 DATA 0,255,0,0,95,0,0,71,0
10660 DATA 1,87,0,1,87,0,0,90,128
10670 DATA 0,42,128,0,42,128,0,170,128
10680 DATA 2,170,128,1,170,128,1,42,128
10690 DATA 0,42,128,0,42,128,0,42,128
10700 DATA 0,42,128,0,42,128,0,15,0
10709 REM * CASTLE DOOR *
10710 DATA 0,0,0,0,0,0,0,0,0
10720 DATA 0,0,0,0,0,0,255,255,0
10730 DATA 223,255,0,223,127,0,223,123,0
10740 DATA 222,251,0,246,251,0,182,219,0
10750 DATA 183,223,0,187,219,0,187,209,0
10760 DATA 239,181,0,239,177,0,239,191,0
10770 DATA 251,247,0,251,247,0,255,255,0
10779 REM * MOON *
10780 DATA 0,24,0,0,112,0,1,224,0
10790 DATA 7,192,0,15,192,0,15,128,0
10800 DATA 31,128,0,28,128,0,31,192,0
10810 DATA 31,248,0,31,240,0,14,192,0
10820 DATA 15,0,0,7,192,0,1,224,0
10830 DATA 0,112,0,0,24,0,0,0,0
10840 DATA 0,0,0,0,0,0,0,0,0
10849 REM * SNOW *
10850 DATA 0,0,0,4,0,128,16,16,2
10860 DATA 1,0,32,0,2,0,64,64,4
10870 DATA 8,4,128,0,128,17,0,2,0
10880 DATA 132,16,0,32,128,64,8,4,8
10890 DATA 0,64,0,0,1,0,68,8,16
10900 DATA 16,128,64,0,4,2,128,32,8
10910 DATA 8,0,128,1,4,0,64,0,16
10998 REM *** DATA FOR SOUND ***
10999 REM ** DATA FOR FREQUENCIES **
11000 DATA 11,48,12,143,14,24,14,239
11010 DATA 16,195,8,97,9,104,10,143
11099 REM ** DATA FOR NOTES **
11100 DATA 1,1,1,1,1,1,2,1,1,1,1,1,6,2
11110 DATA 7,1,6,1,7,1,8,1,1,2,1,2
11120 DATA 1,1,1,1,1,1,2,1,1,1,1,1,6,2
11130 DATA 7,1,6,1,7,1,8,1,1,2,1,2
11140 DATA 5,1,4,1,3,1,2,1,3,1,2,1,1,2
11150 DATA 7,1,6,1,7,1,8,1,1,2,1,2
11160 DATA 6,1,6,1,7,1,8,1,1,1,1,1,2,2
11170 DATA 5,1,4,1,3,1,2,1,1,2,4,2,1,4
```

Sporting chance

The ever-popular sports games are here to stay. Our experts advise you on the best buys

Eddie Kidd Jump Challenge 48K Spectrum £6.95

Software Communications, Martech Hse, Bay Terr, Pevensey Bay, E Sussex BN24 6EE

The object of this game, is to carry out stunts on a motor bike. You have to jump over cars. With each successful jump you are awarded with an extra car. As an extra incentive, there is a competition to find the highest number of cars cleared. You simply record your score on tape and send off your entry. You'll have to be quick. The competition closes on January 11th.

There is the option of keyboard or Interface 2 plus joystick. The use of keys is simple and logical. You control throttle and brake and the distance to the ramp. You control the man on the bike; lean forward or back to control the bike in the air. My only criticism is the simple BMX pedal bike trainer jump at the start of the program. Provided you achieve full speed on take-off, you have no choice but to start again from the BMX jump (which after 1 or 2 tries, you can do with your eyes closed!). **D.N.**

instructions	80%
playability	60%
graphics	70%
value for money	70%

★ ★ ★

Sports Hero 48K Spectrum £6.95

Melbourne Hse, Castle Yd Hse, Castle Yd, Richmond TW10 6TF

Sports Hero is an athletics game with four events — the long jump, 100 metre sprint, 110 metre hurdles and the pole vault.

You start as a street runner and if you qualify in all events you can progress to a university scholarship and finally, to the Olympics team.

What makes Sports Hero stand out is the excellence of the graphics. The animation of the athlete is smooth and realistic, while there is a detailed background of either graffiti-covered housing, students lazing outside an impressive university, or the Olympic stadium, depending on your level. A neat touch is that when you are a street runner the hurdles are dustbins. If you qualify the athlete punches the air in delight but if you fail he shakes his head in disgust.

The instructions are comprehensive but omit to mention you must press 'enter' to start.

When entering your name at the start the keyboard response is poor and sometimes refuses to register.

Sports Hero is an excellent game, my only doubt is whether its appeal will last after the novelty of the graphics has worn off. **S.J.E.**

instructions	80%
playability	80%
graphics	100%
value for money	80%

★ ★ ★ ★ ★

Country Cottages 48K Spectrum £5.95

Sterling, Garfield Hse, 86/88 Edgware Rd, London W2 2YW

This is a game for two people who wish to try their hand in the property market. The idea is that you borrow money, buy cottages, and then let them, failing or prospering according to the vagaries of the property market.

After entering two names you are asked for a degree of difficulty between one and nine, and requested to enter your target for the game, up to £100,000. I entered £300,000 which it accepted! However, on playing, when I reached and passed my target nothing happened. Serves me right I suppose.

Tenants names and descriptions are chosen by the random slicing of strings. For example, I had a weatherbeaten, stout colonel who was only 21!! I didn't find it fun to play, and I really did try. One of the major irritations was being continually asked to press a key.

There are occasions when a key press is necessary to continue, but there are many more occasions when it should not be. The drawings of the cottages are nice, and these, I suspect, were the real motivation for the game. **B.B.**

instructions	100%
playability	70%
graphics	100%
value for money	75%

★ ★ ★ ★

Racing League ZX81 16K £2.90

C R Pearman, 22 Lindale Garth, Wakefield, W Yorks

Ever fancied yourself as a top racehorse owner? Well, here's your chance.

In this simulation, you are awarded membership of the famous 'racing league', among such personalities as Willie Carson, Steve Davis and Terry Wogan. Each celebrity owns three horses and puts up £3,000 stake money.

The game gives you the chance to buy, sell and race horses to find out if you've got what it takes to become 'top owner'. A useful SAVE option is included for when you are on a winning streak. There are 10 horses in each race, with a £220 entry fee. The odds for the race are calculated using the horse's recent form (displayed on the screen by request).

In addition to prize money for the top three placed, you are allowed to bet up to £500 on any horse. A professional punter might find this a limitation, particularly as only a straight win bet is permitted.

Although an interesting game, I think it lacks sufficient depth to become really addictive. However, Racing League is reasonable value at the price. **T.M.H.**

instructions	80%
playability	70%
graphics	N/A
value for money	75%

★ ★ ★

Pitfall II/ Lost Caverns CBM 64 £9.99

Activision, 15 Harley Hse, Marylebone Rd, Regents Pk, London NW1

The latest trend in home computer gaming is the arcade/adventure, which combines elements of quick reaction and strategy. This release seems to be a step in this direction.

You play Pitfall Harry who runs around the caverns of Machu Picchu, searching for gold, his pet cat and his niece. Scattered throughout the maze are vampire bats, condors, scorpions and electric eels which do their best to halt you.

You cannot be killed, but are transported back to the beginning of the previous stage. A perfect score requires the finding of all objects plus avoiding dangers, and this seems impossible. The graphics are superb.

All the creatures are well animated in vivid colour. When Harry drops down a shaft, the ground rumbles as he lands, and swimming is great fun!

Somewhere in the caves is the dreaded stone-age rat which I found impossible to overcome. It can only be subdued from behind. I can strongly recommend this excellent game which has all the best features of current styles. Don't waste time reading this review, go out and buy it. **D.A.**

instructions	50%
playability	90%
graphics	95%
value for money	70%

★ ★ ★ ★

Add-ons for the CBM 64 and VIC-20

Allen Webb has compiled this buyers' guide specially for users of the Commodore 64 and VIC-20. Read before you buy

A LOT has happened in the computer world since my previous hardware survey last May. Many firms have realised that there is great demand for good hardware and have responded accordingly. The main areas of expansion seem to be interfaces, modems, graphics and music. The introduction of the MIDI music interface, in particular, means that 64 owners can now link up to synthesisers and other electronic keyboards and explore the areas of electronic music.

Due to lack of time, I haven't been able to try as many of the bits and pieces as I would have liked so this is a buyers' guide rather than a detailed review. I will try to indicate the features to look for when considering which piece of hardware to buy. Again I must add a rider: I cannot vouch for the performance of any of the items listed here nor can I take responsibility for any problems you may have when you buy. I suggest that before you do buy, find out all about the hardware, look at the specifications and see it operating. It is dangerous to buy unseen, particularly since hardware isn't cheap.

Where I have seen products, I will give any comments in italics next to the entry for the product.

Finally, I must emphasise that this review does not cover all the hardware add-ons available. It should, however, give you a good idea of what is available.

Assemblers

What to look for

1 At least two passes
2 Pseudo op-codes for tables (BYT, WRD, TXT)
3 Labels should be supported. The longer the labels the better
4 Check it doesn't need hardware you don't own, e.g. disc drive
5 easy saving of object code

Super Help £35 CBM 64 Stack *Not at all bad. Some non-standard pseudo op-codes. It also requires the use of a disc drive. Due to the poor monitor in the package, the saving of object codes is messy. Two passes.*

Arrow Plus £44 CBM 64 Stack *Two pass assembler. Uses a number of non-standard pseudo op-codes and insists on labels when using absolute or zero page addressing.*

Micro £57.50 CBM 64 Supersoft *This assembler may be a little pricey, but in my view it's the best about. Uses three passes and assembles to RAM.*

Vickit 5 £26.45 VIC-20 Stack *A fair assembler which is similar to that in Arrow Plus above. Additionally, it requires Vickit 4 to run. At that price it's comparible to Micro's price. Two passes*

Cassette Recorders

Rotronics DR2301 £34.95 CBM 64, VIC-20 SMT

Floppy Tape Drives

Wafadrive £159.95 CBM 64, VIC-20 Rotronics

Graphics

Vickit 3 £26.45 VIC-20 Stack
Koala Pad £79.95 CBM 64 Audiogenic *Expensive but real quality. Enables the creation of multi-colour pictures and operates in a sophisticated manner.*
Grafpad £125 CBM 64 British Micro
Graphics Pack £29.95 CBM 64 Whitby Computers

Interfaces

What to look for

1 You should have a specific requirement, e.g. you choose an interface to suit a printer, not vice versa
2 Check specifications carefully. Are there any drawbacks or possible problems? (e.g. clashing with software)
3 See it working with the intended equipment

IEEE 488 £60 CBM 64/VIC-20 Stack
RS232 £33 CBM 64 Stack
Centronics £24 CBM 64 Stack
Printer interface (with CBM graphics) £89.95 CBM 64 Impex
Printer interface (without CBM graphics) £66.95 Impex
IEEE/RS 232 £59.95 CBM 64, VIC Interpod/Cheetah
Cassette interface £13.99 VIC-20, CBM 64, Glanmire. *Neat little unit which plugs in the cassette port. When you enter LOAD or SAVE, the screen blanks and the normal prompts are lost. Changes normal value in register 1 and therefore may interfere with the correct operation of some software. Works well enough.*
Cassette interface £14.95 VIC-20, CBM 64 Downsway Electronics
Centronics interface £29.95 CBM 64 Downsway Electronics

Joysticks

1 Robustness
2 Accuracy
3 Ease to hold
4 Cost

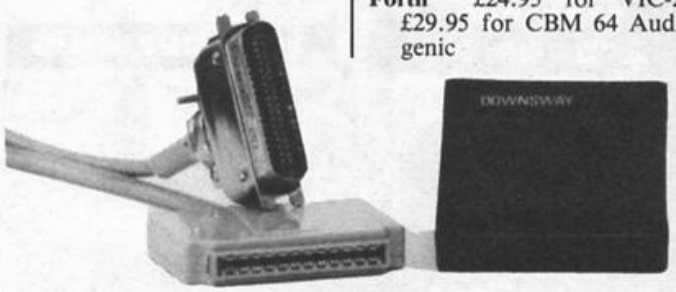
Zap Proof Joystick £7.95 Stack. *Standard style using nylon ball joint. Seems sturdy and works well.*
Competition Pro 1000 £10.99 Kempston
Competition Pro 3000 £12.75 Kempston
Competition Pro 5000 £13.50 Kempston
Delta 35C £10 Voltmace
Joy Sensor £29.95 Consumer Electronics
Quick Shot 1 £9.95 Vulcan Electronics
Starfighter £12.95 Consumer Electronics
Wico Red Ball £19.95 Silica Shop
Wico Staright Stick £17.95 Silica Shop
Hotshot CBM 64, VIC Flight Link Control. *Uses micro switches and has a light touch. Perhaps not as solid and robust as some but accurate and nice to use.*

Languages

What to look for

1 If it's Extended BASIC you want ease of use, sensible commands and no bugs.
2 Other languages. . . faithfulness to original specification of language.

Forth £24.95 for VIC-20, £29.95 for CBM 64 Audiogenic



Centronics Printer Interface for CBM 64



CBM 64/VIC-20 Cassette Interface

Simon's BASIC £50 CBM 64 Commodore. *Generally considered to be poor.*
BC BASIC £49 CBM 64 Kuma *Not bad*

Lightpens

What to look for
1 **Quality of construction**
2 Method of operation (micro switch, touch contacts?)
3 Accuracy. . . single pixel, single character?
4 Software

Stack Light Pen £28 CBM 64 or VIC-20 Stack. *Comes with 10 games and a nice hires package. Works well and seems to be quite accurate.*
Pixstik £29.95 CBM 64 Computapix

Machine Code Monitors

What to look for
1 Standard operation
2 Assembler and disassembler
3 Relocatability
4 Other functions

Zoom £28.75 CBM 64 Supersoft. *In my view look no further. Pity it doesn't have bi-directional scrolling but you can't have everything.*
Vickit 5 £26.45 VIC-20 Stack *Quite standard.*
Arrow £26 CBM 64 Stack
Arrow Plus £44 CBM 64 Stack Normal monitor.
Monitor £19.95 VIC-20 Audiogenic

Memory Expansion

16K switchable £35.50 VIC-20 Downsway Electronics
16K,8K,3K can be got at low prices from Vicsoft. . . VIC. . . Commodore

Modems

Communications Modem £99.99 CBM 64 Commodore
Protek 1200 £59.95 CBM 64, VIC-20 Intelnet

Monitors

Professional 2000 £325 Composer

Motherboards

What to look for
1 Good quality construction
2 Good quality gold plated contacts
3 The ability to bank sockets in and out easily

Two-slot board £9.15 CBM 64, VIC-20, Zero Electronics
Four-slot board £38 CBM 64 VIC-20 Stack. *Full switching so you can have any permutation of cartridges.*
Three-slot board £18.95 CBM 64 Impex
Five-slot board £34.45 (VIC) £42.50 (CBM) Zero Electronics

Music Interfaces

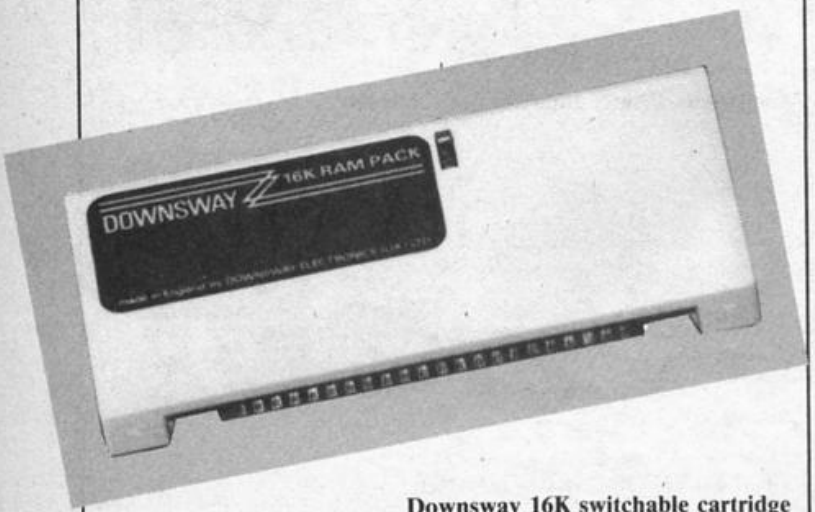
MIDI CBM 64 Chromatix

Networking Systems

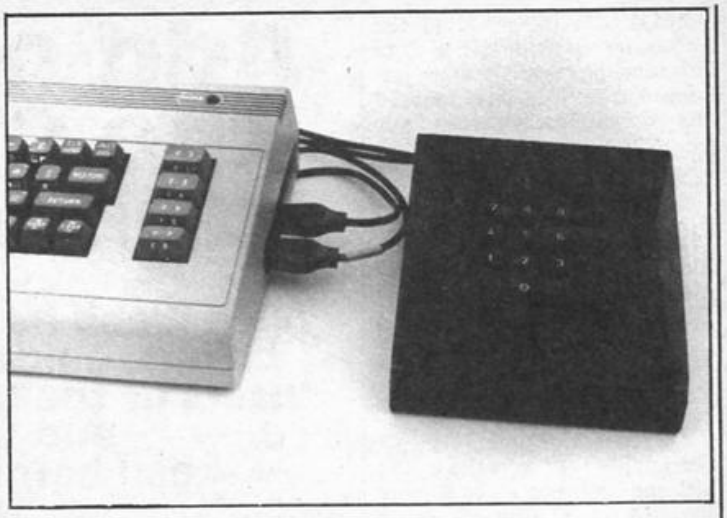
Prestel/Micronet Cartridge + modem £129.95 CBM 64 Prism

Numberpads

Numeric Keypad £28.75 CBM 64, VIC-20 Commercial Products
Datapad 16C £29.95 CBM 64, VIC-20 Voltmace



Downsway 16K switchable cartridge



Datapad 16C from Voltmace

Printers

What to look for...
1 Support of CBM graphic characters
2 Speed of printing
3 Operation without interface

AP40-C1 Serial input £113.85 CBM 64, VIC-20 Able Systems
AP40-C2 Centronics £113.85 CBM 64, VIC-20 Able Systems

Protective covers

£5.99 CBM 64, VIC £3.99 Cassette Protec
£9.95 CBM 64, VIC-20 Tekform

Reset Switches

£7.95 CBM 64, VIC-20 BSF Computer Services

Robots

George £23.95 CGL

ROM

What to look for
1 Good quality construction, decent sockets with gold contacts
2 Easy switching of ROMs

EPROM card £9.15 CBM 64 Zero Electronics
ROM expansion unit £19.95 CBM 64 Impex
ROM carrier £9.20 VIC-20 Stack

RTTY

COM IN 64 £139 CBM 64 Zero Electronics

Screen expansion boards

80 column/grafic card £82.50 CBM 64 Zero Electronics
40/80 column card £64.35 VIC-20 Zero Electronics
80 column card £49.95 CBM 64 Impex

Speech recognition

Micro Command £49.95 CBM 64 Orien Data

Speech synthesis

What to look for
1 Sound quality, intonation, more than one voice
2 Ease of use. . . simple from BASIC or machine code
3 does not steal memory

Speech 64 £29.95 CBM 64 Currah. *Not at all bad. Two voices and intonation. Text to speech conversion.*
Chatterbox £19.95 VIC-20 Currah
JCB Microsystems Speech Synthesiser £29.95 CBM 64 JCB Microsystems
Magic Voice £49.95 CBM 64 Commodore
Commtalk £29 VIC-20 Andor

Speed save

1 Reliability
2 Simple commands
3 Wide range of functions

Arrow £26 CBM 64 Stack
Arrow £44.85 CBM 64 Supersoft
Arrow Plus £44 CBM 64 Stack
Vickit 4 £26.65 VIC-20 Stack
1541 Express (Disc) £49.95 CBM 64 RAM Electronics

Toolkits

What to look for
1 Sensible names for commands
2 Useful commands
3 Commands which work properly... Renumber which renumbers everything.

HELP £25 CBM 64 Stack. *So-so, lousy monitor but overall functions well enough.*
Superhelp £35 CBM 64 Stack *Same as Help but with assembler and other bits.*
Vickit 2 £32.20 VIC-20 Stack
Programmers' Friend £29.95 CBM 64 Whitby Computers
Business Toolkit £29.95 CBM 64 Whitby Computers
Custom Cartridge £34.95 CBM 64 Whitby Computers. *Pick your own commands.*
Buti Plus £39.95 VIC-20 Audiogenic

Touchpads

A3 and A4 pads £149 & £69 CBM 64 & VIC Star Microterminals

Trak Balls

Trak Ball £39.99 Atari

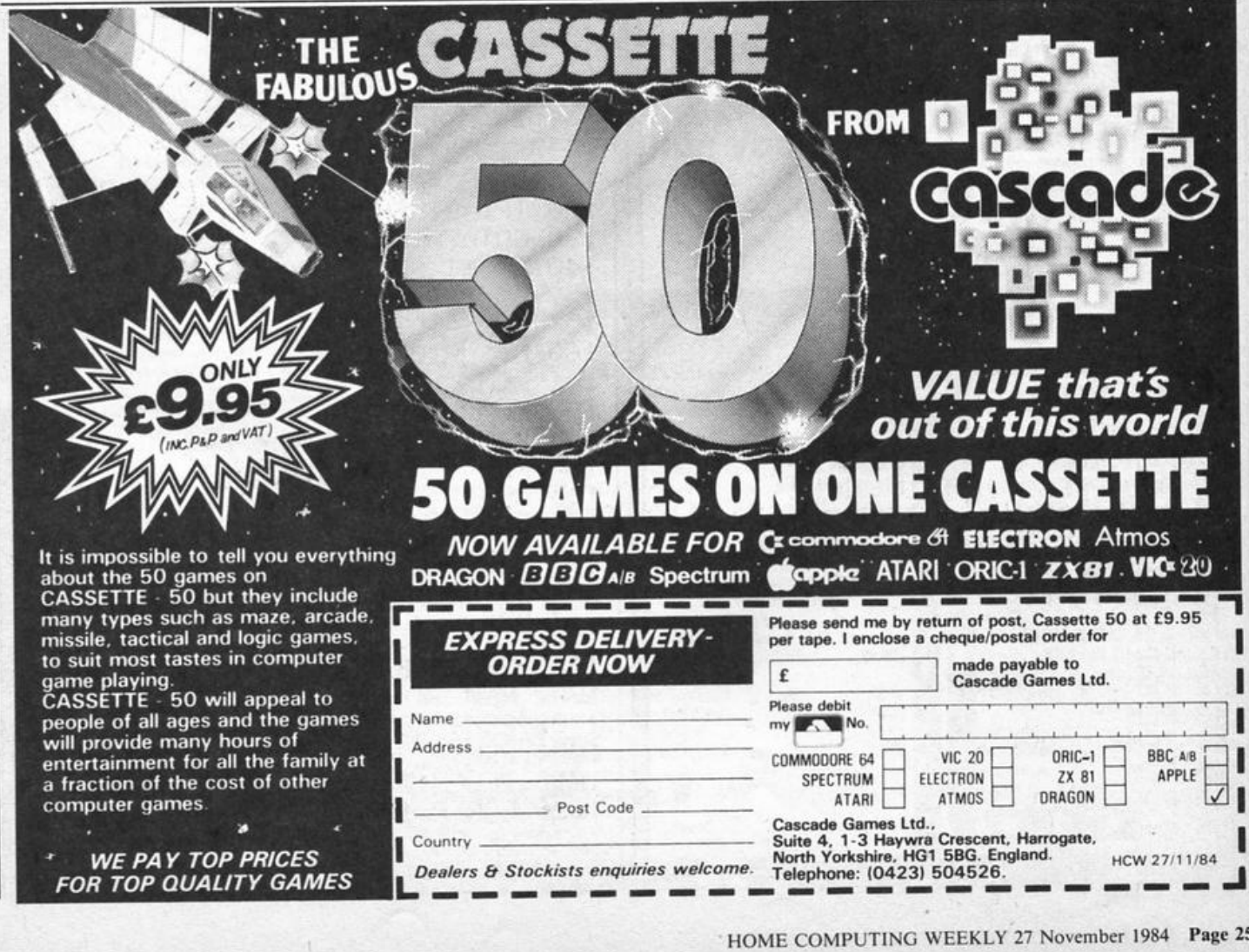
Turtle Systems

Turtle + software £199 (discounts for schools) CBM 64 Valiant

Addresses

Able Systems, Unit 3, Kingfisher Ct, Northwich, Cheshire CW9 7TU
Andor, 28 Hillside Dr, Rathfarnham, Dublin 14, Ireland
Atari International, Atari Hse, Railway Terrace, Slough, Berks
Audiogenic, PO Box 88, Reading Berks
BSF Computer Services, 20-28 Bolsover St, London W1
British Micro, Penfold Works, Imperial Way, Watford, Herts
CGL, CGL House, Golding Hill, Loughton, Essex
Cheetah Marketing, 24 Ray Street, London EC1R 3DJ
Chromatix, Ealing Broadway Centre, Oak Road, London W5
Cirkit Holdings, Park Lane, Broxbourne, Herts
Commercial Products, 11a Hylands Close, Furnace Green, Crawley, Sussex RH10 6RX
Commodore (UK), 1 Hunters Lane, Weldon, Corby, Northants
Compuser, 27 Vulcan Way, New Addington, Croydon, Surrey
Computerpix, Gores Rd, Kirkby Ind Estate, Liverpool
Consumer Electronics, Failsworth, Manchester M35 0HS
Currah Computer Components, Hollymount, Wooler Rd, Hartlepool, Cleveland
Downsway Electronics, Depot Rd, Epsom, Surrey KT17 4RJ
Flight Link Control, Unit 12, The Maltings, Turk St, Alton, Hants
Glanmire Electronics, Westley Hse, Trinity Ave, Bush Hill Park, Enfield EN1 1PH
Impex Software, Metro Hse, Second Way, Wembley, Middx HA9 0TY
Intelnet, Unit C2, Faircharm Ind Est, 8-10 Creekside, London SE8
JCB Microsystems, 29, Southbourne Rd, Bournemouth, Dorset
Kempston Micro Electronics, 180a Bedford Rd, Kempston, Bedford
Orien Data, 31/32 High St, Dorset Gardens, Brighton, Sussex
Kuma Computers, Unit 12, Horseshoe Park, Horseshoe Rd, Pangbourne, Berks
Prism Technology, 18-19 Mora St, London EC1
Protek, 40 Laundry Rd, Shirley, Southampton
RAM Electronics, 106 Fleet Rd, Fleet, Hants GU13 8PA
Rotronics, Santosh Hse, Marlborough Trading Est, West Wycombe Rd, High Wycombe, Bucks
Silica Shop, 1-4 The Mews, Hatherley Rd, Sidcup, Kent
SMT, Freepost, Greens Norton, Towcester, Northants NN12 8BR
Stack Computer Services, Freepost, Bootle, Merseyside L20 0AB
Star Microterminals Ltd, 22 Hyde St, Winchester, Hants
Supersoft, Winchester Hse, Canning Rd, Wealdstone, Harrow, Middx HA3 7SJ
Tekform, Grange Close, Sandbach, Cheshire CW11 9ET
Valiant Designs, Unit 13, Park Hse, 140 Battersea Park Rd, London SW11 4NB
Voltmace Ltd, Park Dr, Baldock, Herts
Vulcan Electronics, 200 Brent St, Hendon, London NW4
Zero Electronics, 149 Kingstreet, Great Yarmouth NR30 21G





Character enlarger

Change the size of your characters with this utility by Tom Clark

This program is a glorified subroutine, but one with great potential. It occupies less than 1K of user RAM, but the variables claim over 2K more, leaving only 361 bytes free.

This can be increased by removing the REM statements, but that still doesn't leave much room to manoeuvre, so expansion memory seems vital. There are no problems with a 3K expansion pack, but if an 8K or 16K pack is fitted the screen location at line 30 must be changed to 4190.

This program has been written so that anything with a screen code value greater than 90 or less than 1 is rejected. VIC users with excess of 7K memory can change this using

14 CLR:DIM QS(2048):A = 32776

Remove line 35

As the program uses features which are unique to Commodore computers it could really only be converted for the 64. "ON" pixels appear as shifted Q; "OFF" pixels appear as shifted W.

Constants

A start of character generator

Variables

B starting location of selected character

C take on and turn locations of each of 8 bits which make up selected character

D decimal value of location C. It changes with C and is reduced to 0 in the process of binary conversion

Q$(S) each Q$ is a "line" of the new, enlarged character. There are eight of these to each character

TC,R counter variable

How it works

14-40 get desired character, initialise variables

50-160 get decimal value for each byte of desired character and convert to binary. Express binary version graphically using shifted Q and shifted W

170-190 print out enlarged character

1010-1040 pad out (if required) binary number to eight digits by adding "OFF" pixels (shifted W) to front

```
1 REM ************
2 REM *            *
3 REM *ENLARGER FOR *
4 REM *            *
5 REM *STANDARD VIC *
6 REM *            *
7 REM *BY TOM CLARK *
8 REM *            *
9 REM * TELEPHONE  *
10 REM*            *
11 REM*  20 31945   *
12 REM*            *
13 REM**************
14 CLR:DIMQ$(721):A=32776
15 PRINT"□ TYPE THE
   REQUIRED   CHARACTER
   AND PRESS   RETURN□□";
20 GETL$:PRINTL$;:IFL$<>
   CHR$(13)THEN20
30 B=PEEK(7774)-1
35 IFB<1ORB>89THENRUN
40 B=(B*8)+A
41 REM
42 REM  * BINARY *
43 REM
44 REM* CONVERSION *
45 REM
50 FORC=BTOB+7
55 S=C-32775
56 S=C-32775
60 Q$(S)="":D=PEEK(C)
70 D=D/2
80 IFINT(D)=DTHENP$="O":GOTO110
90 D=D-0.5
100 P$="●"
110 Q$(S)=P$+Q$(S)
120 IFD=0THEN140
130 GOTO70:NEXTC
140 S=S+1:NEXTC
150 TC=S-8
155 FORS=TCTOTC+7
160 GOSUB1000:NEXT
161 REM
162 REM
163 REM * PRINTOUT *
164 REM
165 REM
170 PRINT"□□□":TC=S-8
180 FORS=TCTOTC+7
190 PRINTQ$(S):NEXT
999 END
1000 REM
1001 REM * BINARY *
1002 REM
1003 REM* CONV/N P2 *
1004 REM
1010 IFLEN(Q$(S))=8THENRETURN
1020 FOR R=1TO8-LEN(Q$(S))
1030 Q$(S)="O"+Q$(S)
1040 NEXT R:RETURN
```

War-games bonanza

If you're a war-games addict then read this page of reviews before you buy. Let our experts guide you

River Raid CBM 64 £9.99

Activision, 15 Harley Hse, Marylebone Rd, Regents Pk, London NW1

The action takes place on the River of no Return, and you have to steer a small jet fighter up the river, trying to penetrate the defences of a hostile force. The screen shows a bird's eye view of the river which scrolls from top to bottom in smooth animation. Enemy units include tanks, which may be on land or on a bridge and sometimes fire shells, hot air balloons, ships and helicopters.

Your aim is to get to the next bridge and destroy it. Several starting points may be selected, and one or two players. The river gets more difficult to negotiate after each bridge and at level 50 is impossible — well almost.

I liked the graphics, very colourful and well defined, and the sound is also good. The actual game can be a little tedious after a while. There is no variation in the tasks you have to perform i.e. pick up fuel, blast the enemy.

The action is fast and hard and should please any arcade fans.

D.A.

instructions	50%
playability	71%
graphics	80%
value for money	75%

★ ★ ★ ★

Air Defence 48K Spectrum £5.95

C.C.S., 14 Langton Way, London SE3 7TL

Attention all you armchair generals! Now's your chance to earn your wings commanding a number of squadrons to repel an enemy air raid. This is a simulation rather than a game and it's very cerebral, so you'll need to wear your gold braided thinking cap.

The main game display is a sectored map, which is updated like radar, every few seconds or so. This shows the relative movement of both your and the enemy's aircraft. In addition you can call up a chart of information which tells you the current status of each aircraft on the map.

Also, during battle, critical messages are flashed up to remind you that things are going critical, or you've got a squadron circling, gradually running out of fuel.

This simulation got my adrenalin pumping and I panicked a lot, with the end result that the computer-controlled enemy planes trounced me, even on level one.

The program will definitely appeal to war-game enthusiasts as it is easy to become engrossed in the detailed strategy. If you like a real challenge, try this one.

M.B.

instructions	90%
playability	100%
graphics	85%
value for money	90%

★ ★ ★ ★

Valkyrie 17 48K Spectrum £9.99

RamJam, 69 Flempton Rd, London E10 7NL

A series of garbled telephone messages reveal that Valkyrie 17, a hideous super-weapon developed by the Nazis, is active again. You fly out to the Hotel Blitz in Lake Bruntz, where your contact was murdered.

At the bar is a girl who would 'lof a trink, dollinsk', whilst nearby the manager demands you pay your bill. Meanwhile, you receive threatening phone calls that say "The Red Kipper Flies at Midnight".

These are just some of the confusing aspects in this wonderful text/graphics adventure. Included in the package is a background dossier and metal badge. There are over 100 locations, full sentence input, and graphics are good with atmospheric descriptions.

It's best merit is the sense of humour. After leaving the dusty cupboard where the maid keeps her brooms a chambermaid appears and politely asks if you have been standing in the broom cupboard. She dusts you down and leaves. It brings a smile to the face of a jaded reviewer.

I discovered a few bugs, and my only complaint is the slightly sluggish response time. One of the best adventures this year — buy it!

P.S.

instructions	100%
playability	100%
graphics	95%
value for money	95%

★ ★ ★ ★ ★

Atram 48K Spectrum £19.95

Atram, Thanet Hse, Craven Rd, London W2

This package looks really exciting. A colour sleeve over the box shows Harriers in flight over a carrier in an Advanced Tactical Reconnaissance And Attack Mission, whilst two users ponder a game board.

The board is magnetic, and divided in half. Each half shows land and sea with targets, and a network of sectors. Each user places his fighters, bombers, carries, airstrips and missiles. Then the two halves are married.

The computer program requires input to record the status of the pieces, and after every move. It keeps the score as each side moves pieces, attacks, runs out of fuel etc. At the end of the actions, it announces the winner.

Despite the slick presentation, the program is very crude. It runs slowly in BASIC, isn't fully error trapped, graphics are unimaginative, input prompts have layout bugs, and input itself requires you to learn a long and tedious code from the not-very-clear manual.

Interesting concept, fabulous box and board, very poor program. Might suit wealthy, addicted war-gamer, but not a 13 year old for Christmas.

D.M.

instructions	50%
playability	30%
graphics	25%
value for money	30%

★

War Zone 48K Spectrum £5.95

CCS, 14 Langton Way, London SE5 7TL

War Zone is a strategy game in which you must use your tanks, infantry and artillery to defeat the computer's forces. The battlefield is a 30 by 30 area displayed in 9 sectors.

There are four kinds of terrain — plainland; roads, which allow faster movement; hills, which decrease movement but increase firing range; and woodland which also slows you down but protects you from enemy fire.

The terrain is different for each game.

Each turn you may move or fire some, or all, of your pieces — but beware of the enemy returning your fire. To end the turn you may make one air attack on any square.

Only sectors which contain your pieces can be displayed — this allows ambushes and troop movements to go undetected.

You can select the number of each type of pieces, and you are allowed a total of between 15 and 150.

The game ends when one side's home sector has been overrun, or there is a 3:1 ratio of pieces. There is an option of saving a partially completed game which is welcome, because even with the minimum number of pieces it can take half an hour to complete.

War Zone is an enjoyable game, although I have found the computer can usually be beaten.

S.J.E.

instructions	100%
playability	70%
graphics	60%
value for money	70%

★ ★ ★

Maths talk

Put your Currah speech unit to good use with Ray Elder's educational program

The Currah speech unit has probably been more widely advertised and adopted by more commercial software companies than any other similar unit.

If you bought one and made it mutter those earth-shaking comments and heard "RUN AWAY" from the umpteenth game, you may well be wondering of what real use it is.

In fact, in the field of education — and we're all learning all the time — it can be of immense value. What I have tried to do is to produce a simple program to give you some ideas which you may like to develop into a far more sophisticated program.

Program breakdown

I'll go through the program bit by bit.

Line 100 initialises the array n$ to hold all the numbers from 1 to 12 in spoken form. Note that the second dimension must be the length of the longest word. The actual DATA is at lines 9000/9110 and is out of the way, high in memory.

Line 110 initialises the variable r to 0. This is our 'r'ight answers counter.

Line 1000 starts the main loop to give 10 questions. Each time the screen is cleared to a different INK colour in order to give a little variation in the display. The screen is left blank deliberately as we want to listen to the question; for this reason the question isn't printed on screen at the same time.

Line 1010 chooses two numbers, a and b, at random to be multiplied together.

Line 1020 utters the word "what". In order to get the best speech here I broke the word into two separate sections.

Line 1030 pronounces the word "is". The use of ' gives a very slight pause which helps to make the word clearer. Using capital letters causes the tone to rise slightly, which adds a little inflexion to the word, again making it clearer.

Line 1040 speaks the appropriate word for random number 'a'.

Line 1050 is the word "times", again broken into parts. The aim was to produce the clearest speech possible and I found this to be the most precise way with many words.

Line 1060 speaks the word for random number 'b'.

Line 1070 prints something on the screen. These are simple instructions which include the option to listen to the question again.

Line 1080 gets the answer. I prompted for it again and used the LINE function to prevent accidental breaking of the program. The answer is held in a$.

Line 1090 checks to see if the user is asking for a repeat of the question and if so does so by going to line 1020. I left the text on screen to indicate that it is a repeat.

Lines 1100/1110 are simple little checks to make sure only valid numerical characters have been entered. If not, then ignore it and wait for the input again. In fact, it is bad programming practice to jump out of a loop before it is completed, but the Spectrum will allow it, and as we haven't the advantage of REPEAT UNTIL loops or PROCs I use the machine's own foibles.

Line 1120 if the answer is correct uses the subroutine at line 9600 to say so.

Line 1130 uses subroutine at line 9500 to tell you (politely) that you're wrong.

Line 1140 end of the main loop

Line 1150 start of the section which informs you how well you did. Speaks the words "you got...".

Line 1155 if all wrong, says "none".

Line 1160 if not all wrong then speaks the number of correct answers.

Line 1170 speaks the word "right".

Line 1180 displays as backup information the number of correct answers and informs the user to "press any key".

Line 1190 waits for a key to be pressed.

Line 1200 once a key is pressed RUNs the program again. GOTO 110 would also have been OK here.

Lines 9000/9110 are the Currah speech words for the numbers one to 12.

Line 9500 reads the words from the DATA line 9510 for the wrong message. This is almost identical to the message given in the Currah handbook, but the method of READING them straight into s$ is even more efficient than the method they suggest.

Line 9600 reads the correct message from line 9610.

Suggestions

This is only a very simple program, and I've left it so deliberately. You will almost certainly have ideas of your own but some things to try are:

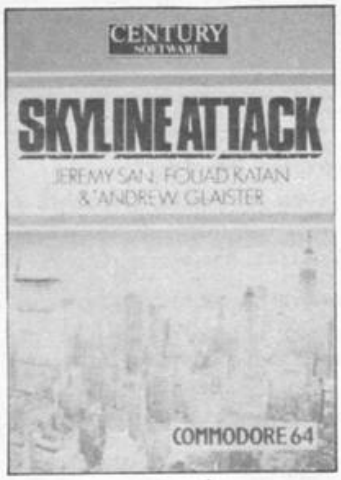
- Add some sound. Try a few BEEPs when an answer is entered, different BEEPs for the right and wrong answers (but not too much or it gets boring).
- Perhaps some graphics? A tick for the right answer, a cross for a wrong one? A FLASHing display for high scores at the end?
- An option to practise a particular table: simply set variable 'a' or 'b' to the table required. A subroutine to offer this facility could be incorporated into the program.
- Extend the range of numbers the program knows! Add them to lines 9000/9110 and increase the array and loop in line 100 to suit.
- Change the sum types ² - / by altering the word in line 1050 and the checks in lines 1120/1130. Again it is possible to offer this as a user facility from within the program.
- How about a speak and spell version?




```
 100 DIM n$(12,12): RESTORE 9000
: FOR i=1 TO 12: READ n$(i): NEX
T i
 110 LET r=0
1000 FOR x=1 TO 10: INK INT (RND
*5)+1: CLS
1010 LET a=INT (RND*12)+1: LET b
=INT (RND*12)+1
1020 LET s$="(wh)O": PAUSE 15: L
ET s$="(tt)": PAUSE 30
1030 LET s$="i'(Z)": PAUSE 30
1040 LET s$=n$(a): PAUSE 50
1050 LET s$="(TT)": PAUSE 8: LET
 s$="(ii)'mz": PAUSE 50
1060 LET s$=n$(b): PAUSE 30
1070 PRINT AT 8,6;"Type in the a
```

```
nswer or"''TAB 6;"Press enter to
 repeat"''TAB 10;"the question"
1080 INPUT TAB 11;"answer = "; L
INE a$
1090 IF a$="" THEN  GO TO 1020
1100 FOR i=1 TO LEN a$: IF a$(i)
<"0" OR a$(i)>"9" THEN  GO TO 10
80
1110 NEXT i
1120 IF VAL a$=a%b THEN  GO SUB
9600
1130 IF VAL a$<>a%b THEN  GO SUB
 9500
1140 NEXT x
1150 LET s$="Y(ou)": PAUSE 25: L
ET s$="(GG)'o(tt)": PAUSE 25
1155 IF r<1 THEN  LET s$="Nun":
PAUSE 20
1160 IF r>0 THEN  LET s$=n$(r):
PAUSE 15
1170 LET s$="R(ii)'(tt)": PAUSE
80
1180 PRINT AT 8,7;"You got ";r;"
 correct"''TAB 2;"Press any key
to play again"
1190 IF INKEY$="" THEN  GO TO 11
90
1200 RUN
8999 STOP
9000 DATA "Wun"
9010 DATA "(TT)(ouu)"
9020 DATA "(th)'rr'(ee)"
9030 DATA "F(or)"
9040 DATA "f(II)'vh"
9050 DATA "siks"
9060 DATA "ss(EH)'ven"
9070 DATA "(ay)'t"
9080 DATA "N(ii)n"
9090 DATA "(tt)en"
9100 DATA "(EE)'lev'n"
9110 DATA "tw'EL'vh"
9500 RESTORE 9510: FOR i=1 TO 6:
 READ s$: PAUSE 50: NEXT i: PAUS
E 100: RETURN
9510 DATA "(II)'m","ss(AR)(ee)",
"but","y(OR) ans(er)"," woz","in
currect"
9600 RESTORE 9610: FOR i=1 TO 3:
 READ s$: PAUSE 50: NEXT i: PAUS
E 100: LET r=r+1: RETURN
9610 DATA "y(OR) ans(er)"," woz"
,"currect"
```


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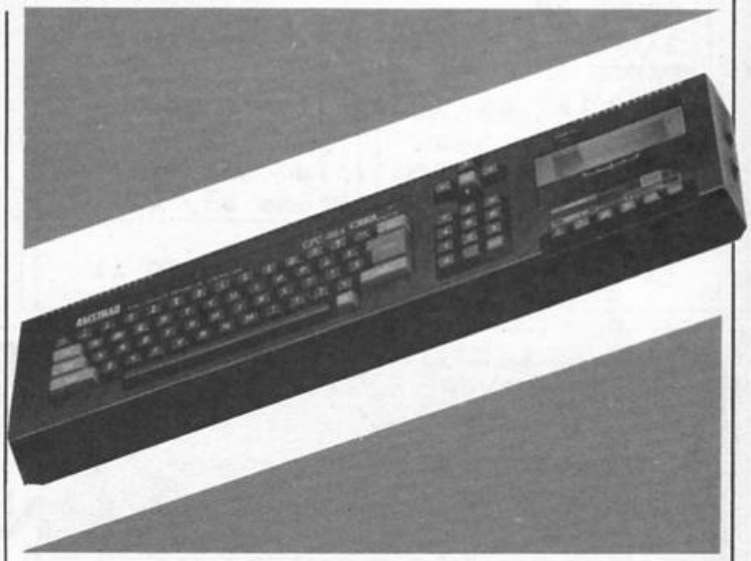
To play the game you must manoeuvre a gun sight around the screen until it is over an enemy ship. Pressing 'fire' will then destroy it. You also have five smart missiles with automatic tracking systems. If you destroy the flag ship when it attacks, you will have won.

Variables

s score
sm smart missiles
x,y target
b,v Tharok lander
H high score

How it works

10-110 start screen
110-290 set up user graphics
300-360 set up inks
370-470 draw screen
480-580 variables
590-750 main program loop
760-1370 various sub-routines



```
10 REM THAROK ATTACK
20 REM BY.S.ANDERSON
30 REM -------------
40 INK 0,0:INK 1,26
50 MODE 1
60 LOCATE 10,5:PRINT"THAROK ATTACK":LOCATE 10,10:PRINT"
PRESS SPACE TO PLAY"
70 WHILE INKEY(47)<>0:WEND
80 h=0
90 MODE 0
100 BORDER 0
110 REM GRAPHICS
120 SYMBOL AFTER 200
130 SYMBOL 200,0,0,0,0,24,16,0,1
140 SYMBOL 201,0,0,0,0,0,24,8,0,128
150 SYMBOL 202,1,0,16,24,0,0,0,0
160 SYMBOL 203,128,0,8,24,0,0,0,0
170 SYMBOL 204,0,60,126,255,126,60,60,24
180 SYMBOL 205,24,36,36,66,66,129,129,129
190 SYMBOL 206,15,63,255,179,255,31,33,195
200 SYMBOL 207,240,252,255,171,255,248,132,195
210 SYMBOL 208,255,159,153,15,7,3,1,1
220 SYMBOL 209,255,249,153,240,224,192,128,128
230 SYMBOL 210,15,1,1,1,3,7,7,3
240 SYMBOL 211,240,128,128,128,192,224,224,192
250 SYMBOL 212,31,63,127,255,32,44,45,33
260 SYMBOL 213,240,252,254,255,4,52,180,132
270 SYMBOL 214,255,255,199,199,199,255,255,255
280 SYMBOL 215,170,255,255,255,255,255,255,255
290 SYMBOL 216,0,36,24,24,36,0,0,0
300 REM INKS
310 INK 2,18
320 INK 3,8
330 INK 4,6
340 INK 5,24
350 INK 6,20
360 INK 7,24,2
370 REM SET UP SCREENS
```

```
380 WINDOW #1,1,20,20,25:PAPER #1,2:CLS#1
390 WINDOW #2,1,20,1,17
400 FOR f=3 TO 17 STEP 2:PEN INT(RND*6)+1:LOCATE f,19:P
RINT CHR$(212)+CHR$(213):NEXT
410 PEN 2
420 LOCATE 1,19:PRINT CHR$(143)+CHR$(215):LOCATE 19,19:
PRINT CHR$(214)+CHR$(143)
430 LOCATE 1,18:PRINT CHR$(215):LOCATE 20,18:PRINT CHR$
(214)
440 PEN 3.
450 LOCATE 9,19:PRINT CHR$(205):LOCATE 9,18:PRINT CHR$(
204)
460 PLOT 264,125,7:DRAWR 12,0
470 LOCATE 10,19:PRINT CHR$(231)
480 REM VARIABLES
490 s=0:sm=5
500 x=320:y=200
510 b=INT (RND*400)+100
520 v=500
530 IF s<300 AND s>190 THEN a$=CHR$(210)+CHR$(211):INK
6,2
540 IF s<200 AND s>100 THEN a$=CHR$(208)+CHR$(209):INK
6,24
550 IF s<110 AND s>-10 THEN a$=CHR$(206)+CHR$(207):INK
6,20
560 TAG
570 IF s=300 THEN 1140
580 PLOT 1,14,1:PRINT"SCORE=";s;"HIGH=";h;"    "
590 REM MAIN PROGRAM
600 PLOT x,y,1:PRINT CHR$(200)+CHR$(201);
610 PLOT x,y-16:PRINT CHR$(202)+CHR$(203);
620 PLOT b,v,6:PRINT a$;
630 MOVE b,v+16:PRINT"  ";
640 x=x+(INKEY(34)=0 AND x>4)*12-(INKEY(27)=0 AND x<580
)*12
650 y=y-(INKEY(67)=0 AND y<400)*8+(INKEY(69)=0 AND y>17
0)*8
```

```
660 IF INKEY(26)=0 THEN ENT 2,100,2,2:SOUND 3,100,5,7,0
,2
670 IF INKEY(26)=0 AND TEST(x+32,y-16)=6 OR INKEY(26)=0
 AND TEST(x+32,y-12)=6 THEN 770
680 IF INKEY(26)=0 AND TEST(x+32,y-16)<>6 THEN 860
690 IF INKEY(47)=0 AND sm>0 THEN 910
700 IF v<130 THEN 1040
710 v=v-14
720 IF s<100 THEN v=v+2
730 IF s<200 THEN v=v+6
740 IF s<310 AND s>200 THEN v=v+4
750 GOTO 600
760 REM ROUTINES FOR LASERS,SMART MISSILES etc.
770 PLOT 270,125,7:DRAW x+32,y-16
780 PLOT b,v:PRINT a$;:PLOT 270,127,0:DRAW x+32,y-16
790 PLOT 264,125,7:DRAWR 16,0
800 INK 6,2,24
810 FOR g=1 TO 500 STEP 50:ENT 1,100,2,4:SOUND 2,g,10,4
,0,1:NEXT
820 PLOT 260,127,0:DRAWR 60,0
830 s=s+10
840 CLS#2
850 GOTO 500
860 PLOT 270,127,7:DRAW x+32,y-16
870 PLOT 270,127,0:DRAW x+32,y-16
880 PLOT 260,127,0:DRAWR 60,0
890 IF s>290 THEN 1240
900 GOTO 700
910 sm=sm-1
920 q=270:w=150
930 WHILE q<>b
940 WHILE w<>v
950 PLOT q,w,5:PRINT CHR$(216);
960 SOUND 2,Q,2,5
970 SOUND 3,W,2,5
980 IF q<b-6 THEN q=q+4
990 IF q>b+6 THEN q=q-4
1000 IF w<v-6 THEN w=w+4
1010 IF w>v+6 THEN w=w-2
1015 IF q>b-12 AND q<b+12 AND w>v-12 AND w<v+12 AND s>2
90 THEN 1300
1020 IF q>b-12 AND q<b+12 AND w>v-12 AND w<v+12 THEN 79
0
```

```
1030 WEND:WEND
1040 FOR f=500 TO 900 STEP 5:SOUND 1,F,1,4:NEXT:MODE 1
1050 PEN 1
1060 TAGOFF
1070 LOCATE 1,5:PRINT"THE ALIENS HAVE LANDED"
1080 LOCATE 1,6:PRINT"EARTH HAS BEEN TAKEN OVER"
1090 IF s>h THEN LOCATE 3,8:PRINT"NEW HIGHEST SCORE":h=
s
1100 LOCATE 1,10:PRINT"PRESS SPACE TO PLAY AGAIN"
1110 WHILE INKEY(47)<>0:WEND
1120 GOTO 90
1130 REM FLAGSHIP ATTACK
1140 b=250:v=500:TAG:INK 6,7
1150 PLOT 1,16,1:PRINT"SCORE=";s;"HIGH=";h;
1160 PLOT x,y,1:PRINT CHR$(200)+CHR$(201);
1170 PLOT x,y-16:PRINT CHR$(202)+CHR$(203);
1180 PLOT b,v,6:PRINT CHR$(222);CHR$(214);CHR$(223);
1190 PLOT b,v-16:PRINT CHR$(221);CHR$(215);CHR$(220);
1200 MOVE B,V+16:PRINT"   ";
1210 IF INKEY(26)=0 THEN ENT 2,100,2,2:SOUND 3,100,5,7,
0,2
1220 IF INKEY(26)=0 AND TEST(x+32,y-16)=6 THEN 1290
1230 IF INKEY(26)=0 AND TEST(x+32,y-16)<>6 THEN 860
1235 IF INKEY(47)=0 THEN 910
1240 IF v<130 THEN 1040
1250 v=v-8
1260 x=x+(INKEY(34)=0 AND x>4)*12-(INKEY(27)=0 AND x<58
0)*12
1270 y=y-(INKEY(67)=0 AND y<400)*8+(INKEY(69)=0 AND y>1
70)*8
1280 GOTO 1160
1290 INK 6,2,24
1300 BORDER 25,9
1310 FOR f=1 TO 1000 STEP 10:SOUND 2,f,1,7:NEXT
1315 BORDER 0
1320 MODE 1:TAGOFF
1330 LOCATE 5,10:PRINT"THE ALIEN FLAGSHIP IS DESTROYED"
:LOCATE 5,11:PRINT"EARTH IS SAVED"
1340 IF s>h THEN LOCATE 5,20:PRINT"NEW HIGHEST SCORE":h
=s
1350 LOCATE 5,23:PRINT"PRESS SPACE TO PLAY AGAIN"
1360 WHILE INKEY(47)<>0:WEND
1370 GOTO 90
```


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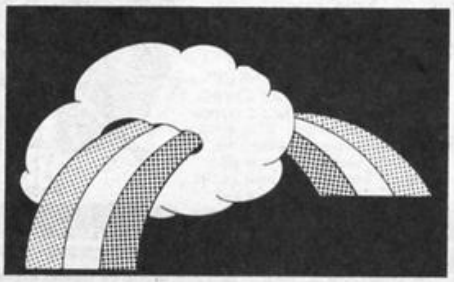
Buying software can seem a pretty bad deal when you pay £5.99 for only a couple of hours play.

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Spoilt brats

Now that Christmas is looming large on the horizon, no doubt many youngsters will be given computers for Christmas.

When I was young we never had such expensive presents. Parents nowadays seem to spend so much on their young children. When I was very small we were given one main present and then Father Christmas came and gave us lots of little goodies. When I look around now at my neighbours' and friends' children, I think they're really spoiled and don't even appreciate it.

It seems that the less a family can afford it, the more money they spend on toys and presents for the children. I remember when I was a boy one of my best presents was a model train. It wasn't cheap, I know, but it wasn't so expensive either, and I had to save up all my pocket money to buy more track and more carriages. I tell you, I really did appreciate it when I went down the shop and spent all my Saturday pennies.

Youngsters nowadays seem to expect that their parents will spend £200 or more on their Christmas present. I wouldn't spend that much on a holiday. What if there are several children in a family and their parents must make sure to treat them all equally? That means spending almost £1000 just on presents. Its absolutely ludicrous!

So, if your parents give you a computer for Christmas, or something equally as expensive, then you should realise just how much they cost and think yourself lucky!

Tom Hawley, Streatham

Cheer up!

I must say that I think HCW has some very miserable readers.

All I read on the letters page these days are complaints, moans and grumbles.

I own a CBM 64 and am very happy with it. I like reading letters from owners of other micros and I don't mind seeing programs published for them either.

I am very happy with HCW the way it is. I think there are now some very good articles appearing. Keep it up.

But please could other readers send in some cheerful useful letters instead of being so down in the dumps.

James Walsh, Liverpool

Vocal majority

In reply to Henry O'Donovan's letter (HCW 86), I would just like to say that I think he is being particularly selfish just because he owns a Spectrum.

Yes, I agree that there are more Spectrum owners than other owners but probably if you added up the number of people who own other micros then they would outnumber the Spectrum users.

The point I am making is — it's perfectly fair to run more material for other computers and less for Spectrum because we, and not they, are in the majority!

George Wallace, Lincoln

Delighted

Replying to two of your readers, Linda Magyar, Bognor Regis, although I am no longer young, I also have an Amstrad and am highly delighted with it and hope to learn to use it for more than games, but it may be a slow process when not so young.

Regarding your reader J.H. Bryan, Birmingham, the fault is not in line 790, but in an entry before that line. I was unable to run this program (I still can't get it to work), beyond 740 and found a fault in my entry further back. I then got it to go to 750 but have not been able to get beyond 750.

K Brown, Northallerton

Dark Star is great

Whilst reading through the reviews in HCW 67 I read the review on Design Design's Dark Star. I Cannot believe that DN only gave the graphics 80%. Although it was mentioned that the graphics are more spectacular than most, the reviewer failed to mention the amazing quality and smoothnes of the 3D effects. Did he go through hyperspace? FIRE can be defined on all of your chosen direction keys.

Look above the hi-score chart. How does the programmer do the colours in the border? Simon Brattel has included many comical points and created an exciting game that took six months to write, surely that's value for money? Well done Simon!

Many of my friends and I are fed up with the constant competition between hi-scores on Arcade games. Please, if HCW must print these, couldn't there be a hi-score chart specially for those fanatics who wish to show off?

Graham Luff, Cambridge

Don't buy them!

I am a CBM 64 owner and a dedicated adventure maniac. I used to own a VIC-20 but I caught up with it and so I sold it.

I love my 64 and own the two classic adventures — The Hobbit and Valhalla. I haven't got very far with either of them and I'm not going to ask for any tips. If I ever see any tips for these or any other adventures on the 64 then I will just cut them out and throw them away. If you can't do the adventure without cheating then don't buy it.

It took me three whole days to do Adventure Land for the VIC-20 and I didn't get any help from anyone. That's the idea of adventure — use your brains and think out problems.

By the way I think HCW is the best mag available. Keep up the good work and let's see more adventures reviewed or perhaps an adventure page in the magazine.

Neil Glew, Nottingham

More on piracy

More fairy stories about the legality of software piracy in this week's issue, I see (HCW letters, 6 Nov '84).

Does HCW need to endorse Stephen William's glaring errors by giving him a prize? Let's hope it wasn't some of our software he was given.

Now let's clarify the situation rather more accurately. It is not yet legally proven that software is covered by the Copyright Act, but if it isn't this can only be because it did not exist when the act was drafted, a mistake that could no doubt be rectified quite quickly by Parliament.

If software is covered by the law of copyright then the purchaser is not allowed to make copies for distribution to friends, whether in return for payment or not. The same is true, incidentally, for music cassettes and records. The fact that this law is commonly disregarded does not legalise the breaches.

Anyone who makes copies of software on whatever pretext should stop for a moment and think about the likely consequences of widespread copying. Most of the best computer programs are written by programmers who rely upon them as a source of income, or at least regard the potential earnings as an incentive. Aren't those who copy or condone copying killing the goose that lays the golden eggs?

We all know that copying goes on. We know it will go on whatever the legal position. But do we have to condone something that is morally wrong? Do we need to try to justify something that is against the interests of the majority?

If we are going to debate software piracy let's concentrate more on the morality of the situation rather than the legality. After all, laws are only needed to discourage people from acting against the interests of society.

Peter Calver, Supersoft, Middlesex.

I'm all right Jack

I feel that I must write down my views on some of the points that other readers have been bringing up in the HCW letters page recently.

I am fed up with reading that people who own the less popular computers are annoyed because the Spectrum gets so much coverage.

I have had my Spectrum for many months now and I chose this machine because I realised that there was more and better software available for it.

Some people are so stupid. They go out and buy the first computer that they see in the shops and then get annoyed because when they try to buy good software or add-ons they are inevitably disappointed.

I don't want to read about the problems they are having through their own stupidity. Why should Spectrum owners (who are in the majority) be made to suffer by a minority which has brought its problems on itself.

All you TI-99/4A, Oric and Dragon owners could have bought a Spectrum if you wanted one so don't expect any sympathy from me!

Atari rules, OK

I own an Atari and I think that for such a good computer it is sadly neglected by the majority of big software houses.

In HCW I am always reading letters from annoyed TI-99/4A owners and I sympathise very much with them.

It is a terrible feeling when you see so many reviews about software for other computers and none for your own.

I would never think of getting rid of my micro because I think that it is every bit as good as a Commodore or Spectrum. The sound and graphics on Atari machines are very, very good and programmers should realise the potential of these facilities and write some more programs for Ataris.

I have noticed that Atari is running a very strong promotion campaign at the moment and I am very pleased to see this. I hope this will mean that software companies will sit up and take notice. Atari machines are among the best on the market and it is unfortunate that they have been ignored for so long.

James Thorpe, Birmingham

Send your letters to Letters, Home Computing Weekly, No.1 Golden Square, London W1R 3AB. Don't forget to name your computer — the best letter could win £5-worth of software. Got a problem with your micro? We'll soon be starting a queries page, so send your technical questions to Queries at the above address.

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Variables

VO volume
SU sustain
AT attack
HF high frequency
LF low frequency

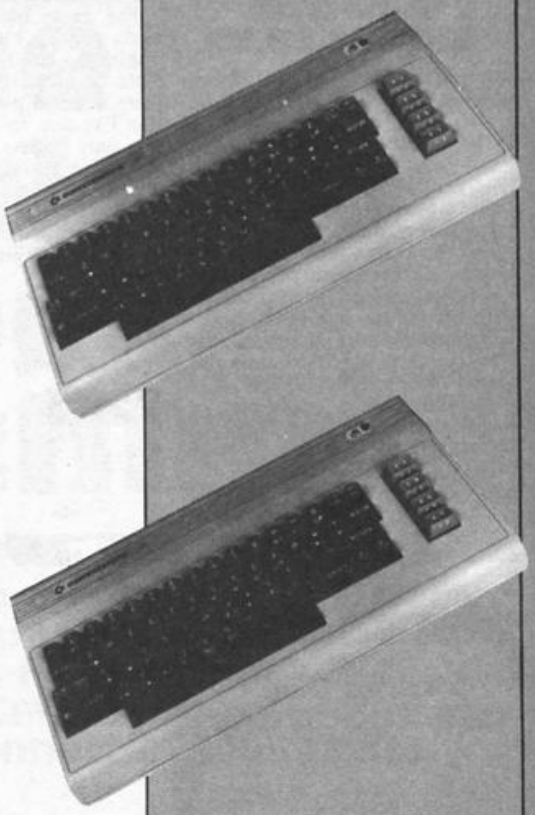
How it works

5 clear sound
10 set up sound variables
20-50 menu
52-58 get input and act on it
100-199 first sound
200-299 second
300-399 third
400-499 fourth
500-599 fifth
600-699 sixth
700-799 seventh
800-899 eighth
900-999 ninth
1000 clear sound channels

```
5 FORC=54272TO54296:POKEC,0:NEXT
10 VO=54296:AT=54277:WA=54276:SU=54278:LF=54272:HF=54273
19 REM CLR
20 PRINT"■":POKE53280,0:POKE53281,0
21 REM CRD-  6*CRR
22 PRINT"■■■■■■■SOUND EFFECTS"
23 REM   2*CRD-  2*CRR
24 PRINT"■■■1)  DROID PASSING IN CORRIDOR"
25 REM CRD-  2*CRR
26 PRINT"■■■2)  PANIC ALARM"
27 REM CRD-  2*CRR
28 PRINT"■■■3)  EXPLOSION"
29 REM CRD-  2*CRR
30 PRINT"■■■4)  SAUCER TAKING OFF"
31 REM CRD-  2*CRR
32 PRINT"■■■5)  ANOTHER TAKING OFF!"
33 REM CRD-  2*CRR
34 PRINT"■■■6)  SAUCER LANDING!!!"
35 REM CRD-  2*CRR
36 PRINT"■■■7)  REFUELLING NOISE"
37 REM CRD-  2*CRR
38 PRINT"■■■8)  2 SPECIAL NOISES"
39 REM CRD-  2*CRR
40 PRINT"■■■9)  ALARM"
49 REM CRD-  4*CRR
50 INPUT"■■■■PRESS NUMBER";NO
52 IFNO<1ORNO>9THEN50
54 NO=INT(NO)
56 ONNOGOSUB100,200,300,400,500,600,700,800,900
```

```
58 GOTO20
100 POKEAT,255:POKESU,4:POKELF+3,8:POKEVO,15:POKEAT+14,255:POKESU+14,4
102 POKEWA,65:POKEWA+14,129
104 FORS=1TO30
106 FORT=0TO4
108 FORJ=T*5TO1STEP-1
110 POKEHF,J*2
112 POKEHF+14,T
114 NEXT:NEXT:NEXT
120 POKEHF,0:POKEHF+14,0:GOSUB1000:RETURN
200 POKEAT,32:POKESU,255:POKEAT+14,32:POKESU+14,255:POKEWA,65:POKEWA+14,17
202 POKELF+2,0:POKELF+3,8
204 POKEVO,15:FORS=50TO100
206 FORT=40-INT(RND(1)*39)TO41
208 POKEHF,T
210 POKEHF+14,S-INT(RND(1)*50)
212 NEXT:NEXT
214 POKEHF,0:POKEHF+14,0:GOSUB1000:RETURN
300 POKEVO,15:R=0
302 POKEAT,1:POKESU,255:POKEAT+14,32:POKESU+14,255:POKEWA,129:POKEWA+14,129
304 R=R+1:POKEHF,1:POKEHF+14,2:FORT=1TO50:NEXT:POKEHF,0:POKEHF+14,0
305 IFR=4THENPOKEHF,4:POKEHF+14,5
306 X=15:IFR=4THENFORX=15TO0STEP-.05
308 POKEVO,X:IFR=4THENNEXTX:GOTO310
309 GOTO304
310 POKEHF,0:POKEHF+14,0:GOSUB1000:RETURN
400 POKEAT,32:POKESU,255:POKEAT+14,32:POKESU+14,255:POKEWA,65:POKEWA+14,129
402 POKELF+2,0:POKELF+3,8
404 POKEVO,15:POKEHF+14,25
406 FORT=0TO195STEP5:FORK=200TOTSTEP-1
408 POKEHF,T:POKEHF,K
410 NEXT:POKEHF,0:NEXT
412 GOSUB1000:RETURN
500 POKEAT,32:POKESU,255:POKEAT+14,32:POKESU+14,255:POKEWA,65:POKEWA+14,129
502 POKELF+2,0:POKELF+3,8
504 POKEVO,15:POKEHF+14,25
506 FORT=0TO195STEP5:FORK=TTO200
508 POKEHF,T:POKEHF,K
510 NEXT:POKEHF,0:NEXT
512 GOSUB1000:RETURN
600 POKEAT,32:POKESU,255:POKEAT+14,32:POKESU+14,255:POKEWA,65:POKEWA+14,129
602 POKELF+2,0:POKELF+3,8
604 POKEVO,15:POKEHF+14,25
606 FORT=195TO0STEP-5:FORK=TTO200
608 POKEHF,T:POKEHF,K
610 NEXT:POKEHF,0:NEXT
612 GOSUB1000:RETURN
700 POKEAT,32:POKESU,255:POKEWA,65
702 POKELF+2,0:POKELF+3,8
704 POKEVO,15
706 FORB=1TO5:FORT=2TO26:FORK=1TO5
708 POKEHF,T
710 NEXT:POKEHF,0
712 FORD=1TO50:NEXTD,T,B
714 GOSUB1000:PRINT" AND A VARIATION....."
720 POKEAT,32:POKESU,255:POKEWA,21
722 POKEHF+14,20
724 POKEVO,15
726 FORB=1TO5:FORT=2TO26:FORK=1TO5
728 POKEHF,T
```

```
730 NEXT:POKEHF,0
732 FORD=1TO50:NEXTD,T,B
734 GOSUB1000:RETURN
800 POKEAT,32:POKESU,255
802 POKEHF+14,5
804 POKEWA,23
806 POKEVO,15
808 FORT=1TO210STEP.1:POKEHF,T:NEXT
810 FORT=209TO0STEP-.5:POKEHF,T:NEXT
812 POKEHF+14,0:POKEHF,0
814 POKEVO,0
820 POKEAT,32:POKESU,255
822 POKEHF+14,10
824 POKEWA,35
826 POKEVO,15
828 FORT=1TO210STEP.1:POKEHF,T:NEXT
830 FORT=209TO0STEP-.5:POKEHF,T:NEXT
832 POKEHF+14,0:POKEHF,0
834 POKEVO,0
836 GOSUB1000:RETURN
900 POKEAT,32:POKESU,255:POKEHF+14,20
906 POKEWA,37::A=30:B=-20
908 POKEVO,15:FORT=1TO25
910 FORS=1TOA:POKEHF,S::NEXT:A=A+B:B=-B
912 FORK=1TO200:NEXT
914 NEXT:POKEHF,0:POKEHF+14,0
916 GOSUB1000:RETURN
1000 FORC=54272TO54296:POKEC,0:NEXT:RETURN
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Space Special

Here's a page of space-style games that will transport you away from the drab side of life

Galactic Plague Amstrad CPC464 £8.95

Amsoft, 169 Kings Rd, Brentwood, Essex

This program proves that you cannot always judge a game by its programmers. Coming from the Spanish company, Indescomp, it might be easy to assume that this is up to the standard of some of their other programs such as Roland in the Caves. This is not the case at all.

I rather get the impression that Paco Suarez could program this after lunch one day. It is a space game and has a whole host of deadly aliens coming down on you from the top of the screen. They drop the usual bombs and have a nasty habit of dropping one just as you shoot them thereby killing you.

The game has speed, colour and noise but lacks any originality and interest. The main point in its favour is that there is a two player option, the first I've seen for this machine. I can only believe that watching two players would be twice as boring as watching one. Added to all this, I find the first screen just too difficult and you use to many lives on this level. **D.C.**

instructions	75%
ease of use	50%
graphics	75%
value for money	40%

★ ★

Jet-Boot Jack CBM64 £7.95

English Software, Box 43, Manchester M60 3AD

A jetpack scenario provides the action with a musical overtone. As with most 64 cassettes this one comes in a 'turbo load' type format, which means fast loading, in this case around 4 minutes. The reliability does not seem to be affected.

As Jet-Boot Jack, who looks like a cross between Flash Gordon and Captain Birdseye, your task is to journey through a Record Pressing Plant, collecting musical notes. Objects such as fuel may be picked up, while mechanical gremlins, sliding floors and lifts keep you on your toes — sorry, fingers.

Aliens such as Stators and Patrollers are killed by jumping on their heads(!) Flappers are creatures which can't be killed. This game requires a joystick, and provides a fast and amusing challenge, perhaps a little too fast. A mastery of the technique is essential for a high score.

Sound and graphics are well used, with demo options, skill levels, and a very entertaining theme tune. I found it difficult to play at first, but after practise it proved quite addictive. Not the most original game of the year, but certainly a professional job and worth a try. **D.A.**

instructions	70%
playability	80%
graphics	70%
value for money	68%

★ ★ ★

Select One 48K Spectrum £12.49

Computer Records, 21 Napier Pl, London W14 8LG

The computer compilation cassette has finally arrived. Select One contains twelve games, all originally released at normal prices. It is a nice idea, but obviously quality is the most important factor.

On Select One, quality is pretty good. Ocean provide three very good games: Hunchback, Mr Wimpey and the lesser known Transversion. Quicksilva provide three old but fairly playable space games: Meteor Storm, Space Intruders and Time Gate, whilst Bug-Byte present Pool, a very good version, plus Spectres, an early but still fun Pacman. There is the highly praised political adventure Denis Through The Drinking Glass from Applications. Finally, there are three from Anirog: Missile Defence, plus two dreadful games — Kong and Moon Buggy.

Although none of the games are new (with the exception of the latter two Anirog programs) all are good, and would cost well over £60 if bought individually. I suspect many people will already have the best of these.

Still, it represents exceptional value if you want two or more of the games listed, or you are new to the Spectrum. I look forward to compilations of even better quality. **P.S.**

instructions	100%
playability	80%
graphics	N/A
value for money	95%

★ ★ ★ ★

BMX on the Moon 32K BBC £7.95

Superior, Dept C, Regent Hse, Skinner La, Leeds 7

This title must be the most silly and irrelevant that has ever been published for the BBC. It must be designed to catch the unwary BMX/BBC owners and help them part with their cash.

The BMX in question is in fact a moon cycle and you have to ride it over the surface of the moon avoiding rocks, bouncing monsters, flying barrels and alien space-ships.

The graphics are reasonable but the game itself is very badly designed. To jump over the rock you have to accelerate and jump, but once you are in mid-air you can brake! The main problem is that the game is not very realistic and so it is difficult to understand. At times it is impossible to continue and you have to crash.

The game is obviously a copy of an arcade game and taking this into consideration it is of a fairly low standard.

With all this you may think the game is awful and you shouldn't buy it but this is only an opinion and someone else may find it very good. There's no accounting for taste! **D.B.**

instructions	65%
playability	50%
graphics	75%
value for money	55%

★ ★ ★

The Stainless Steel Rat Saves The World CBM 64 £8.65

John Wiley, Baffins La, Chichester, Sussex PO19 1UD

One of the latest in the way of text and graphic adventures is this offering from Shards Software, which attempts to recreate events from the novel of the same name by Harry Harrison. If you haven't read the book don't worry, you get a free copy with every cassette.

As Jim DiGriz you are plunged into an alarming scenario when an evil creature called He is destroying the world by cutting off its past. Your mission is to defeat the menace, and a variety of hardware is left for you to use, including the mysterious Time Helix which I found unfathomable.

In this adventure two word phrases are used to describe actions, which does limit play slightly, although an interactive help is available. The illustrations were a little cruder than most, but still highly imaginative. I found that reading the book also gave a much better background than the game introduction.

This adventure to me seemed a little less well presented than some, but science fiction fans will love it, and it is certainly a challenge. Wait till you have to 'manipulate spin, flux, resonance and phase ' to determine their properties. **D.A.**

instructions	65%
playability	69%
graphics	65%
value for money	85%

★ ★ ★ ★

The principles of block searching

Ever wondered how you get a program to find things, like data from within a file? Ponder no longer — Bob Bennett explains all

Computerised filing systems have many advantages over the more conventional data storage methods, not least of which is the reduction in size of the storage material. One cassette, or disc, takes up a lot less room than the equivalent book, or card system. Another advantage is the speed of retrieval of data from within the file, and the method of that retrieval is the subject of this article. First though, let's have a look at how a typical computer filing system might be laid out.

When the 'skeleton' of the file is laid down it consists of labels which refer to the data we wish to put into the file. For instance, if you were the secretary of a social club, the layout of Fig.1 might meet your needs. Because the labels will refer to each member only one set of labels are needed, and these will occupy only a few addresses within memory.

The data however will most likely differ from member to member — at least the membership numbers should. This means then that each member has a unique place within the file, which could be laid out as per Fig.2. It is important that each field of data is allocated the same number of addresses. For example the telephone numbers could take up to 10 bytes, and the name 25 bytes. Whatever, the thing is that each field has the same number of addresses, whether they are occupied or not. This means that each block of data is an exact number of bytes from its counterpart in the next file. This number of bytes we could call ADDER, if we wanted to, because, if we take the starting address for, say, names, and add the number of bytes difference, we would be at the start of the next name block.

Another important fact is that data should be entered for each member in exactly the same way. For instance, if you were the secretary of a social club, the layout of Fig.1 might meet your needs. Because the labels will refer to each member only one set of labels are needed, and these will occupy only a few addresses within memory.

The data however will most likely differ from member to member — at least the membership numbers should. This means then that each member has a unique place within the file, which could be laid out as per Fig.2. It is important that each field of data is allocated the same number of addresses. For example the telephone numbers could take up 10 bytes, and the name 25 bytes. Whatever, the thing is that each field has the same number of addresses, whether they are occupied or not. This means that each block of data is an exact number of bytes from its counterpart in the next file. This number of bytes we could call ADDER, if we wanted to, because, if we take the starting address for, say, names, and add the number of bytes difference, we would be at the start of the next name block.

Another important fact is that data should be entered for each member in exactly the same way. For instance, if you enter Brown. A. for the first file, and then Brown, A.B., or even A.B.Brown, that's fine, but if you request a search for A.B.BROWN, he or she won't exist.

The foundations for the search will be laid down in the file maintainance program. For example, this program will have to detect a request for a search, which could be just pressing key S. Then a menu would have to be presented to enable you to choose which set of data you want to access.

Suppose you wanted to find out how many members were called Smith. You would select 'names' from the menu, and then you should be requested to put in the name required. After terminating your entry, most likely with ENTER, the computer is now set to search the files. When you first selected 'names' from the menu, the computer would immediately set a marker to point to the starting address of the first name block.

In the program listing given it is the HL pair which is loaded with NAMES before the program is called. Whilst you were entering the name a counter would be keeping tabs on the number of characters in the name. Don't forget, your computer doesn't know the difference between a name and a telephone number. Smith has five characters, so the search will be for five bit patterns to match up in the correct order with the five that you entered.

The labels used in the program are as follows:

TEMP is where the starting address for each field is TEMPorarily stored

COUNT is where the number of characters is stored

STORE is an area in memory reserved for the storage of data to be worked on, sometimes called a buffer. In this instance it will hold the starting address for each name block which contains the five bit patterns which humans call Smith

ADDER is where the number of bytes between data blocks is stored

TEXT is a temporary area which holds the characters to be searched for

TOTAL holds the number of files to be searched through

The numbers in ADDER and TOTAL will be constants set when the program is initialised.

Once the search has been completed there remains the matter of presenting the data which has been found. That is the subject matter for another article, but the program shouldn't be too difficult to structure. Each complete file occupies a known number of addresses, each data field has a precise position within the file, the total number of files is known, and the starting address of each file is known by computation.

NAME :

ADDRESS :

PHONE NO. :

MEMBERSHIP NO. :

SUBS DUE : (date)

Fig. 1 File labels

Notes

On entry the HL pairs hold the address of the first data field to be searched. On exit, it is the data in STORE which is of interest. This data will be a series of addresses which are the starting addresses of each data block holding the information searched for.

If you need to know how many times a match occurred, then a separate counting loop could be set up, and the counter incremented **after** the DJNZ instruction, and **before** the AGAIN label.

The total number of files accessed by the program in TOTAL is assumed to be less than 256, which is not a lot. For any number greater than 255 use the BC pair — Ld BC, (TOTAL) - DEC BC - Ld A,B-OR C - RET Z, and Ld

(TOTAL),BC. This would mean that the instructions Ld A,(COUNT) - Ld B,A would have to come just before the JR START instruction. Just a slight rearrangement would be required.

```
        Ld,A,(COUNT)
        Ld B,A
        Ld IX,STORE
START   Ld DE,TEXT
        Ld (TEMP),HL
LOOP    Ld A,(DE)
        CP (HL)
        JR NZ,AGAIN
        INC HL
        INC DE
        DJNZ LOOP
        Ld HL,(TEMP)
        Ld (IXÖØ),L
        Ld (IX+1),H
        INC IX
        INC IX
AGAIN   Ld A,(COUNT)
        Ld B,A
        Ld DE,(ADDER)
        Ld HL,(TEMP)
        ADD HL,DE
        Ld A,(TOTAL)
        DEC A
        RET Z
        Ld (TOTAL),A
        JR START
```

Program listing for a block search

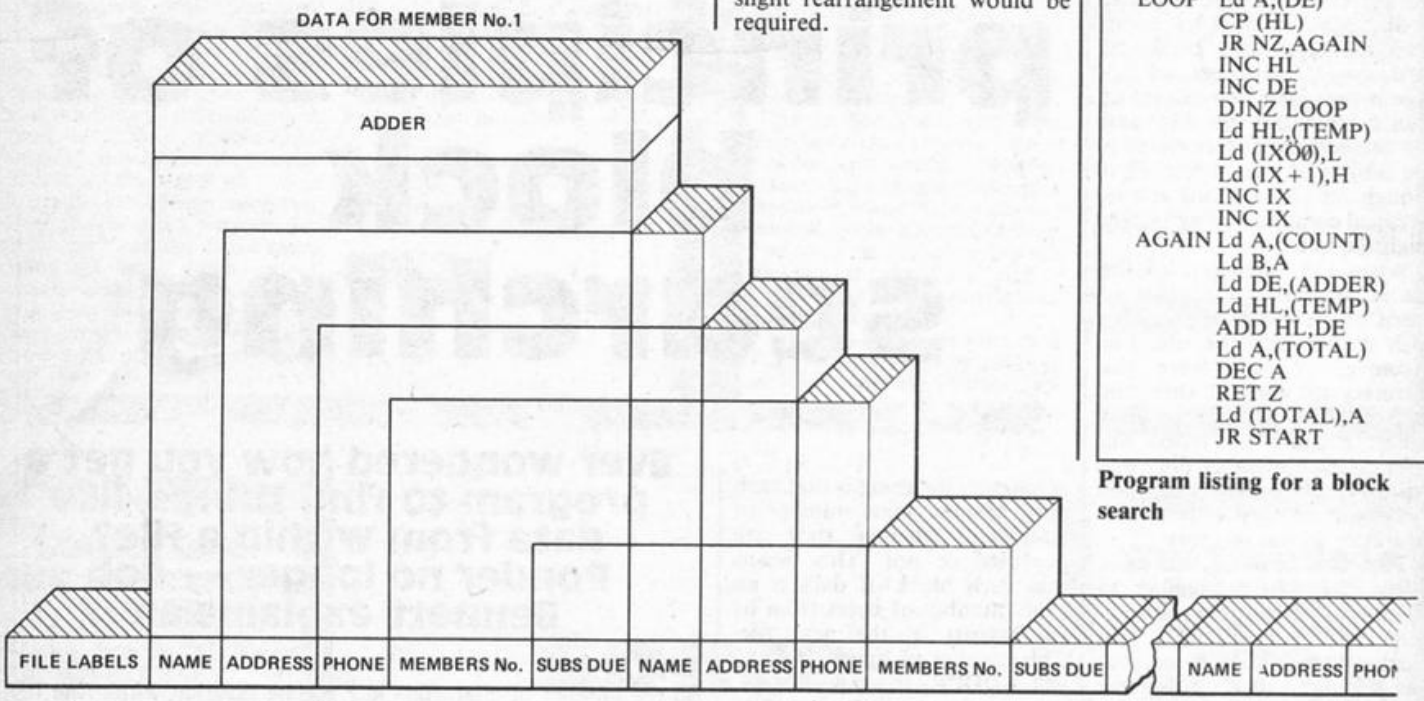


Fig. 2 Layout of a file within memory

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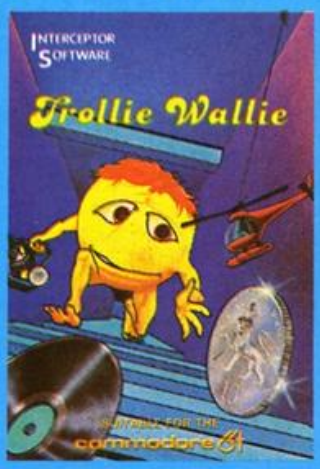
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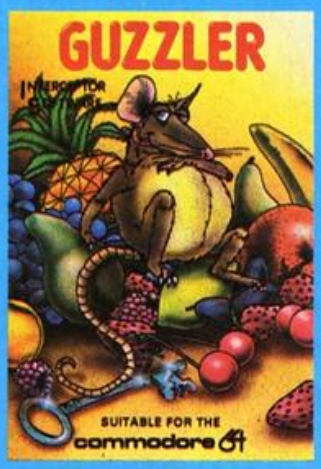
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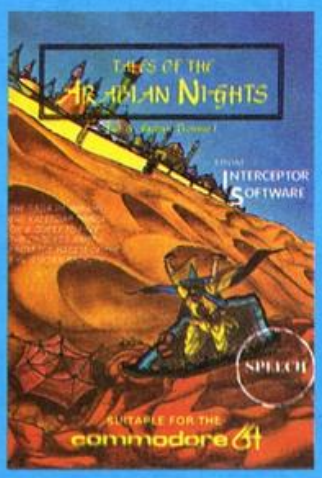
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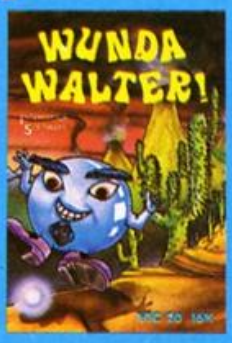
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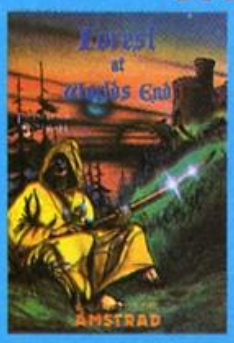


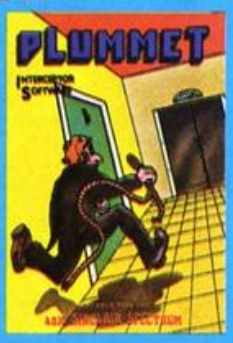
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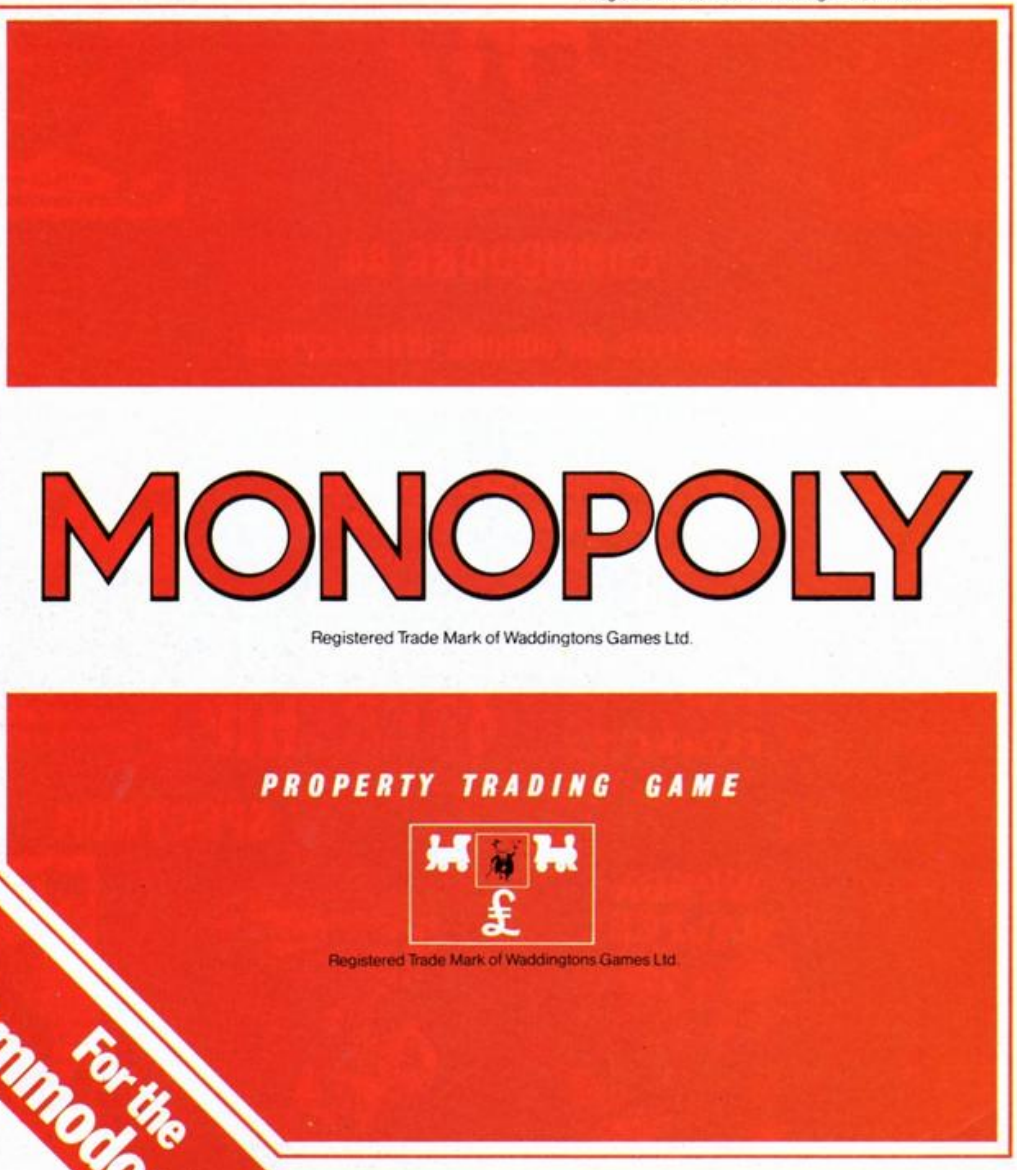
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3	Jet Set Willy	S Projects	Spectrum (2)
4	Manic Miner	S Project	Spectrum (4)
5	Booty	Firebird	Spectrum (-)
6	Combat Lynx	Durell	Spectrum (6)
7	Monty Mole / Wanted	Gremlin Graphics	Spectrum (3)
8	Beach-Head	U.S. Gold	Spectrum (5)
9	Perils of Willy	S Projects	VIC-20 (-)
10	Danger Mouse / Double Trouble	Creative Spks	Spectrum (9)

NON-ARCADE

1	Elite	Acornsoft	BBC (1)
2	Underwuride	Ultimate	Spectrum (-)
3	American	Mind Games	Spectrum (2)
4	Twin Kingdom Valley	Bug-Byte	Spectrum (6)
5	Eureka	Domark	Spectrum (-)
6	Avalon	Hewson	Spectrum (-)
7	Tir Na Nog	Gargoyle	Spectrum (3)
8	Scrabble	Leisure Genius	Spectrum (5)
9	Summer Games	Epyx	CBM 64 (-)
10	Sherlock	Melbourne Hse	Spectrum (7)

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SPECTRUM

1	Underwuride	Ultimate (-)
2	Jump Challenge	Martech (7)
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5	Jet Set Willy	S Projects (9)
6	Beach Head	U S Gold (4)
7	Super Ted	Longmans (-)
8	Full Throttle	Micromega (-)
9	Match Point	Sinclair (6)
10	Strange Loop	Virgin (-)

COMMODORE 64

1	Fighter Pilot	Digital Int (-)
2	P C Fuzz	Anirog (-)
3	Hampstead	Melbourne Hse (-)
4	Cluedo	Leisure Genius (10)
5	Chiller	Mastertronic (9)
6	Beach Head	U S Gold (-)
7	Scrabble	Leisure Genius (-)
8	International Soccer	Commodore (-)
9	Bruce Lee	U S Gold (-)
10	River Raid	Activision (-)

DRAGON 32

1	Hunchback	Ocean (1)
2	Hungry Horace	Melbourne Hse (3)
3	Mystery of the Java Star	Shards (-)
4	Chuckie Egg	A & F (2)
5	Cuthbert in Space	Microdeal (5)
6	Mr Dig	Microdeal (4)
7	Kriegspiel	Beyond (6)
8	Dragon Chess	Oasis Software (7)
9	The King	Microdeal (8)
10	Bug Diver	Mastertronic (10)

Compiled by W. H. Smith and Websters. Figures in brackets are last week's positions.

VIC-20

1	The Wizard and the Princess	Melbourne Hse (-)
2	Duck Shoot	Mastertronic (2)
3	Computer War	Creative Sparks (1)
4	Max	Anirog (8)
5	Sub Commander	Creative Sparks (-)
6	Tower of Evil	Creative Sparks (-)
7	Sub Hunt	Mastertronic (10)
8	Snooker	Visions (5)
9	Space Scramble	Mastertronic (-)
10	Perils of Willy	S Projects (-)

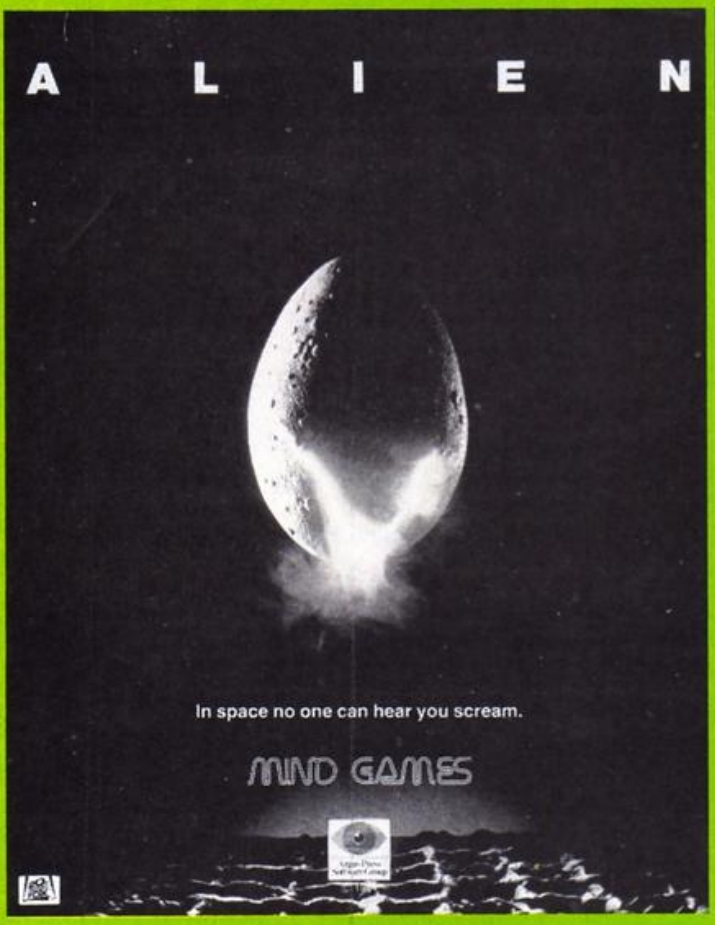
BBC

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2	Mini Office	Database (5)
3	Football Manager	Addictive (-)
4	Castle of Gems	MRM (-)
5	Aviator	Acornsoft (-)
6	Jet Pac	Ultimate (2)
7	Mr EE	Micropower (-)
8	Chess	Acornsoft (-)
9	Killer Gorilla	Precision (-)
10	Frak!	Aardvark (10)

AMSTRAD

1	Harrier Attack	Amsoft (2)
2	Code Name Matt	Amsoft (4)
3	Chess	Amsoft (-)
4	Roland in the Cave	Amsoft (-)
5	Star Commando	Terminal (5)
6	Hunter Killer	Amsoft (6)
7	Monster Chase	Romik (3)
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9	Roland Goes Digging	Ampleseft (10)
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3. Who played the part of the Captain? _____
4. Name the star system where they found the Alien? _____
5. What is the name of the cat? _____
6. Which crew member assisted the Alien? _____

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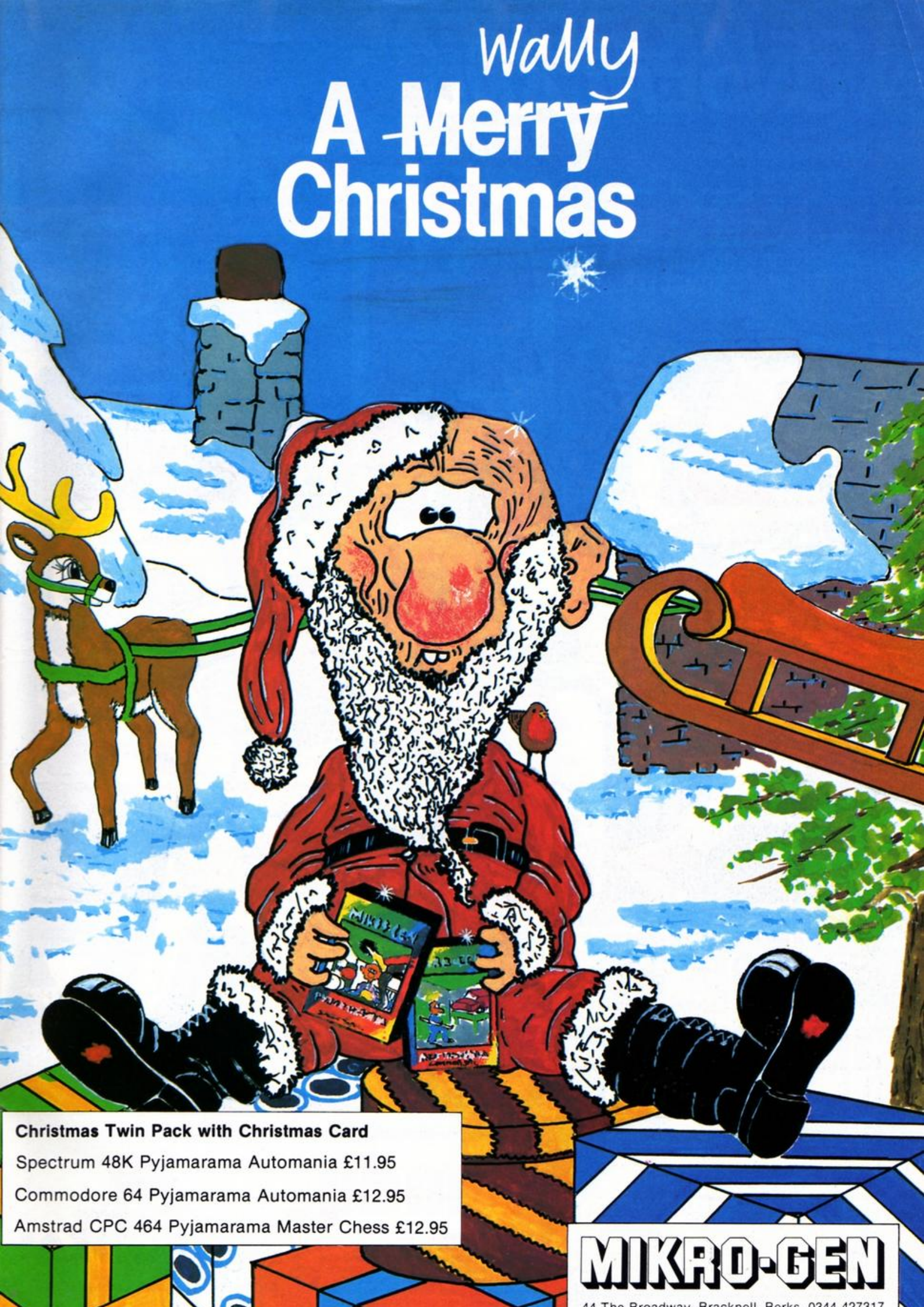
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